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Certifications

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HUB:

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DBE: VN 20657

NCTRCA

WFWB38444Y0909

LELAP-02002

NELAP Certifications

Lubbock: T104704219-08-TX El Paso:

T104704221-08-TX

Midland: T104704392-08-TX

LELAP-02003

Kansas E-10317

Analytical and Quality Control Report

Brad Davis Zia Engineering & Environmental 755 S. Telshor Blvd. Suite F-201 Las Cruces, NM, 88011

Report Date: September 4, 2009

Work Order:

9082611

Project Name: HELSTF Chromate Spill Groundwater

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Date Time Date Description Taken Taken Received Sample Matrix 207812HLSF-0143-HMW-041-0809 water 2009-08-24 10:15 2009-08-24

Comment(s)

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 76 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Notes:

For inorganic analyses, the term MQL should actually read PQL.

Standard Flags

- ${f U}\,$ Not detected. The analyte is not detected above the SDL.
- ${f J}$ Estimated. The analyte is positively identified and the value is approximated between the SDL and MQL.
- B The sample contains less than ten times the concentration found in the method blank.
- JB The analyte is positively identified and the value is approximated between the SDL and MQL.

The sample contains less than ten times the concentration found in the method blank.

The result should be considered non-detect to the SDL.

Dr. Blair Leftwich, Director
Dr. Michael Abel, Project Manager

Case Narrative

Samples for project HELSTF Chromate Spill Groundwater were received by TraceAnalysis, Inc. on 2009-08-24 and assigned to work order 9082611. Samples for work order 9082611 were received intact without headspace and at a temperature of 14.0 deg. C.

Samples were analyzed for the following tests using their respective methods.

		Prep	Prep	QC	Analysis
Test	Method	Batch	Date	Batch	Date
Ag, Total	S 6010B	53818	2009-08-31 at 09:55	63055	2009-08-31 at 11:00
${ m Alkalinity}$	SM 2320B	53964	2009-09-01 at $13:00$	63228	2009-09-01 at $13:00$
Al, Total	S_{010B}	53818	2009-08-31 at $09:55$	63055	2009-08-31 at 11:00
${ m Ammonia}$	SM 4500-NH3 B,C	53864	2009-08-31 at $10:45$	63111	2009-08-31 at 16:00
As, Total	S 6010B	53818	2009-08-31 at 09:55	63055	2009-08-31 at 11:00
Ba, Total	S_{010B}	53818	2009-08-31 at $09:55$	63055	2009-08-31 at 11:00
Be, Total	S_{010B}	53818	2009-08-31 at $09:55$	63055	2009-08-31 at 11:00
Bromide (IC)	E 300.0	53722	2009-08-26 at $11:39$	62950	2009-08-26 at 17:34
Ca, Total	S_{010B}	53818	2009-08-31 at $09:55$	63131	2009-09-01 at $14:24$
Cd, Total	S 6010B	53818	2009-08-31 at $09:55$	63055	2009-08-31 at $11:00$
Chloride (IC)	E 300.0	53722	2009-08-26 at $11:39$	62950	2009-08-26 at 17:34
Chromium, Hexavalent	$\mathrm{SM}\ 3500\text{-Cr}\ \mathrm{B}$	53774	2009-08-24 at $17:30$	63013	2009-08-24 at $17:30$
Co, Total	S 6010B	53818	2009-08-31 at 09:55	63055	2009-08-31 at 11:00
Cr, Dissolved	S_{010B}	53950	2009-09-03 at $08:06$	63220	2009-09-03 at $10:38$
Cr, Total	S 6010B	53818	2009-08-31 at $09:55$	63055	2009-08-31 at 11:00
Cu, Total	S 6010B	53818	2009-08-31 at $09:55$	63055	2009-08-31 at 11:00
Explosives (8330)	S 8330-C18	53708	2009-08-26 at $15:00$	62929	2009-08-26 at 18:52
Fe, Total	S 6010B	53818	2009-08-31 at $09:55$	63055	2009-08-31 at 11:00
Fluoride (IC)	E 300.0	53722	2009-08-26 at $11:39$	62950	2009-08-26 at 17:34
Hg, Total	S 7470A	53720	2009-08-27 at $12:36$	62974	2009 - 08 - 27 at 16.05
K, Total	S_{010B}	53818	2009-08-31 at $09:55$	63131	2009-09-01 at $14:24$
Mg, Total	S_{010B}	53818	2009-08-31 at $09:55$	63131	2009-09-01 at $14:24$
Mn, Total	S_{010B}	53818	2009-08-31 at $09:55$	63055	2009-08-31 at 11:00
Mo, Total	S_{010B}	53818	2009-08-31 at $09:55$	63055	2009-08-31 at 11:00
Na, Total	S 6010B	53818	2009-08-31 at $09:55$	63131	2009-09-01 at $14:24$
Ni, Total	S 6010B	53818	2009-08-31 at $09:55$	63055	2009-08-31 at 11:00
Nitrate and Nitrite as N	SM 4500-NO3 E	53917	2009-08-28 at $11:24$	63168	2009-08-28 at 11:26
O/G	$\to 1664$	54005	2009-09-01 at $10:47$	63270	2009-09-02 at $13:25$
Pb, Total	S_{010B}	53818	2009-08-31 at $09:55$	63055	2009-08-31 at 11:00
pН	SM 4500-H+	53838	2009-08-25 at $10:30$	63079	2009-08-25 at 10:30
P, Total	S 6010B	53818	2009-08-31 at $09:55$	63055	2009-08-31 at $11:00$
Sb, Total	S 6010B	53818	2009-08-31 at $09:55$	63055	2009-08-31 at $11:00$
Semivolatiles	S 8270C	53805	2009-08-28 at $15:00$	63035	2009-08-28 at $16:42$
Se, Total	S 6010B	53818	2009-08-31 at $09:55$	63055	2009-08-31 at 11:00
SO4 (IC)	E 300.0	53722	2009-08-26 at $11:39$	62950	2009-08-26 at 17:34
TDS	SM 2540C	53968	2009-08-27 at 11:08	63232	2009-08-27 at 11:08
TKN	E 351.3	53865	2009-08-31 at $12:00$	63112	2009-08-31 at $19:00$
Tl, Total	S 6010B	53818	2009-08-31 at $09:55$	63055	2009-08-31 at 11:00
TOC	SM 5310C	54014	2009-09-04 at $14:42$	63285	2009-09-04 at $14:42$
Total Cyanide	SM 4500-CN C, $\rm E$	53840	2009-08-31 at $10:15$	63080	2009-08-31 at 15:15
TPH DRO	Mod. 8015B	53761	2009-08-27 at 15:00	62994	2009-08-27 at 20:00

		Prep	Prep	QC	${ m Analysis}$
Test	Method	Batch	Date	Batch	Date
TPH GRO	S~8015B	53703	2009-08-26 at $16:12$	62920	2009-08-26 at 16:12
V, Total	S_{6010B}	53818	2009-08-31 at $09:55$	63055	2009-08-31 at 11:00
Zn, Total	S_{6010B}	53818	2009-08-31 at $09:55$	63055	2009-08-31 at 11:00

Results for these samples are reported on a wet weight basis unless data package indicates otherwise.

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 9082611 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

All other exceptions associated with this report have been footnoted on the appropriate analytical page to assist in general data comprehension. Please contact the laboratory directly if there are any questions regarding this project.

Report Date: September 4, 2009 Work Order: 9082611 Page Number: 5 of 76

HELSTF Chromate Spill Groundwater

Analytical Report

Sample: 207812 - HLSF-0143-HMW-041-0809

Laboratory: Lubbock

Analytical Method: Analysis: Ag, Total S 6010B Prep Method: S 3010A RRQC Batch: 63055 Date Analyzed: 2009-08-31 Analyzed By: Prep Batch: 53818 Sample Preparation: 2009-08-31 Prepared By: KV

SDLMQLMethod Based Based Blank MQLMDL SDLParameter Result Result Result Units Dilution (Unadjusted) (Unadjusted) Flag Total Silver 0.00111 0.00111 < 0.00111 < 0.00500< 0.00111mg/L0.005

Sample: 207812 - HLSF-0143-HMW-041-0809

Laboratory: Lubbock

Al, Total S 3010A Analysis: Analytical Method: S 6010B Prep Method: QC Batch: 63055 Date Analyzed: Analyzed By: 2009-08-31 RRPrep Batch: 53818 Sample Preparation: 2009-08-31 Prepared By: KV

SDLMQLMethod Based Based Blank MQLMDLFlag Parameter Result Result Result Units Dilution SDL(Unadjusted) (Unadjusted) Total Aluminum 0.1750.175< 0.00301 mg/L0.003010.050.00301

Sample: 207812 - HLSF-0143-HMW-041-0809

Laboratory: El Paso

Analysis: Alkalinity Analytical Method: SM 2320BPrep Method: N/AQC Batch: 63228 Date Analyzed: 2009-09-01 Analyzed By: JGPrep Batch: 53964Sample Preparation: Prepared By: JG

SDLMQLMethod Based Based Blank MQLMDL Flag Parameter Result Result Result Units Dilution SDL(Unadjusted) (Unadjusted) Hydroxide Alkalinity mg/L as CaCo3 < 1.00 <1.00 < 1.00 1.00 1 1 UCarbonate Alkalinity < 1.00 < 1.00 < 1.00mg/L as CaCo3 1 1.00 1 1 Bicarbonate Alkalinity 200200< 4.00mg/L as CaCo3 4.00 4 4 1 200 mg/L as CaCo3 Total Alkalinity 200 < 4.001 4.00 4 4

Sample: 207812 - HLSF-0143-HMW-041-0809

Laboratory: Lubbock

Analysis: Analytical Method: SM 4500-NH3 B,C Prep Method: N/AAmmonia QC Batch: Date Analyzed: Analyzed By: AH63111 2009-08-31 Prep Batch: 53864Sample Preparation: 2009-08-31 Prepared By: AH

Report Date: September 4, 2009

Work Order: 9082611 HELSTF Chromate Spill Groundwater Page Number: 6 of 76

		SDL	MQL	Method					
		Based	Based	Blank				MQL	MDL
Parameter	Flag	Result	Result	Result	Units	Dilution	SDL	(Unadjusted)	(Unadjusted)
Ammonia-N	U	< 0.353	< 1.00	< 0.353	mg/L	1	0.353	1	0.353

Sample: 207812 - HLSF-0143-HMW-041-0809

Laboratory: Lubbock

Analysis: As, Total Analytical Method: S 6010B Prep Method: S 3010A QC Batch: 63055Date Analyzed: 2009-08-31 Analyzed By: RRPrep Batch: Sample Preparation: 2009-08-31 Prepared By: KV53818

SDLMQL Method Based Based Blank MQLMDL Result Units Dilution SDL Parameter Flag Result Result (Unadjusted) (Unadjusted) Total Arsenic < 0.00448 < 0.0100 < 0.00448mg/L0.00448 0.00448 1 0.01

Sample: 207812 - HLSF-0143-HMW-041-0809

Laboratory: Lubbock

Analysis: Ba, Total Analytical Method: S 6010B Prep Method: S 3010A QC Batch: 63055 Date Analyzed: 2009-08-31 Analyzed By: RRPrep Batch: Sample Preparation: 2009-08-31 Prepared By: KV53818

SDLMQLMethod MQLBased Based Blank MDL Parameter Flag Result Result Result Units Dilution SDL(Unadjusted) (Unadjusted) Total Barium 0.01200.0120< 0.00105 0.001050.0050.00105 mg/L1

Sample: 207812 - HLSF-0143-HMW-041-0809

Laboratory: Lubbock

Analysis: Be, Total Analytical Method: S 6010B Prep Method: S 3010A QC Batch: 63055 Date Analyzed: 2009-08-31 Analyzed By: RRPrep Batch: 53818 Sample Preparation: 2009-08-31 Prepared By: KV

SDLMQLMethod MQLMDL Based Based Blank Parameter Flag Result Result Result Dilution SDLUnits (Unadjusted) (Unadjusted) Total Beryllium < 0.000450 < 0.00200 < 0.000450 mg/L0.0004500.002 0.00045

Sample: 207812 - HLSF-0143-HMW-041-0809

Laboratory: Lubbock

Analysis: Bromide (IC) Analytical Method: E 300.0 Prep Method: N/A

Report Date: September 4, 2009 Work Order: 9082611 Page Number: 7 of 76 HELSTF Chromate Spill Groundwater QC Batch: 62950 Date Analyzed: 2009 - 08 - 26Analyzed By: SSPrep Batch: Sample Preparation: 2009-08-26 Prepared By: SS53722SDLMQLMethod MQLBased Based Blank MDLParameter Result Result ResultUnits Dilution SDL(Unadjusted) Flag (Unadjusted) < 2.50Bromide 1.66 < 0.960 mg/L5 0.9600.5 0.192

Sample: 207812 - HLSF-0143-HMW-041-0809

Laboratory:	$\operatorname{Lubbock}$								
Analysis:	Ca, Total		Ana	lytical Meth	od: S	6010B		Prep Meth	od: S 3010A
QC Batch:	63131		Date	e Analyzed:	20	009-09-01		Analyzed E	By: RR
Prep Batch:	53818		Sam	ple Prepara	ion: 20	009-08-31		Prepared E	By: KV
			_						
		SDL	MQL	Method					
		Based	Based	Blank				MQL	MDL
Parameter	Flag	Result	Result	Result	Units	$\operatorname{Dilution}$	SDL	(Unadjusted)	(Unadjusted)
Total Calcius	m	418	418	<1.17	mg/L	10	1.17	1	0.117

Sample: 207812 - HLSF-0143-HMW-041-0809

Laboratory:	$\operatorname{Lubbock}$								
${ m Analysis}$:	Cd, Total		Analyt	ical Method:	S 601	10B		Prep Metho	od: S 3010A
QC Batch:	63055		Date A	nalyzed:	2009-	-08-31		Analyzed B	y: RR
Prep Batch:	53818		Sample	e Preparation	: 2009-	-08-31		Prepared B	y: KV
		SDL	MQL	Method					
		Based	Based	Blank				MQL	MDL
Parameter	Flag	Result	Result	Result	Units	Dilution	SDL	(Unadjusted)	(Unadjusted)
Total Cadmiu	$^{\mathrm{u}}$	< 0.000303	< 0.00200	< 0.000303	mg/L	1	0.000303	0.002	0.000303

Sample: 207812 - HLSF-0143-HMW-041-0809

Laboratory:	Lubboc	k							
Analysis:	Chlorid	e (IC)		Analytical	Method:	E 300.0		Prep M	Iethod: N/A
QC Batch:	62950			Date Anal	yzed:	2009-08-26		Analyz	ed By: SS
Prep Batch:	53722			Sample Pr	eparation:	2009-08-26		Prepar	ed By: SS
		SDL	MQL	$\operatorname{Met} \operatorname{hod}$					
		Based	Based	Blank				MQL	MDL
Parameter	Flag	Result	Result	Result	Units	Dilution	SDL	(Unadjusted)	(Unadjusted)
Chloride		2500	2500	<15.7	$\mathrm{mg/L}$	100	15.7	2.5	0.157

Sample: 207812 - HLSF-0143-HMW-041-0809

Report Date: September 4, 2009 Work Order: 9082611 Page Number: 8 of 76

HELSTF Chromate Spill Groundwater

Laboratory: El Paso

Analysis: Chromium, Hexavalent Analytical Method: SM 3500-Cr B Prep Method: N/AQC Batch: Date Analyzed: 2009-08-24 Analyzed By: MD63013 Prep Batch: 53774Sample Preparation: 2009-08-24 Prepared By: MD

> SDLMQLMethod

Based Based Blank MQL MDL Parameter Flag Result Result Result Units Dilution SDL(Unadjusted) (Unadjusted) Hexavalent Chromium 0.6470.647< 0.00594 mg/L0.00594 0.01 0.00594

Sample: 207812 - HLSF-0143-HMW-041-0809

Laboratory: Lubbock

Analysis: Co. Total Analytical Method: S 6010B Prep Method: S 3010A QC Batch: 63055 Date Analyzed: 2009-08-31 Analyzed By: RRPrep Batch: 53818 Sample Preparation: 2009-08-31 Prepared By: KV

SDLMQL Method Based Based Blank

MQLMDLParameter Flag Result Result Result Units Dilution SDL(Unadjusted) (Unadjusted) Total Cobalt < 0.000822 < 0.00200 < 0.000822 mg/L0.0008220.0020.000822

Sample: 207812 - HLSF-0143-HMW-041-0809

Laboratory: Lubbock

Analysis: Analytical Method: Prep Method: S 3005A Cr, Dissolved S 6010B QC Batch: 63220 Date Analyzed: 2009-09-03 Analyzed By: RRPrep Batch: 53950 Sample Preparation: 2009-09-03 Prepared By: KV

SDLMQLMethod

Based Based Blank MQLMDL SDLResult Result Parameter Result Units Dilution (Unadjusted) (Unadjusted) Flag Dissolved Chromium 0.3930.0005830.000583 0.393< 0.000583 mg/L0.001

Sample: 207812 - HLSF-0143-HMW-041-0809

Laboratory: Lubbock

Analysis: Cr, Total Analytical Method: Prep Method: S 3010A S 6010B 2009-08-31 QC Batch: 63055Date Analyzed: Analyzed By: RRPrep Batch: 53818 Sample Preparation: 2009-08-31 Prepared By: KV

SDL \mathbf{MQL} Method

		Based	Based	Blank				MQL	MDL
Parameter	Flag	Result	Result	Result	Units	Dilution	SDL	(Unadjusted)	(Unadjusted)
Total Chromium		0.470	0.470	< 0.000583	$\mathrm{mg/L}$	1	0.000583	0.005	0.000583

Report Date: September 4, 2009 Work Order: 9082611 Page Number: 9 of 76

HELSTF Chromate Spill Groundwater

Sample: 207812 - HLSF-0143-HMW-041-0809

Laboratory: Lubbock

Analysis: Cu, Total Analytical Method: S 6010B Prep Method: S 3010A QC Batch: 63055Date Analyzed: 2009-08-31 Analyzed By: RRPrep Batch: 53818Sample Preparation: 2009-08-31 Prepared By: KV

SDL MQL Method

Blank MQLBased Based MDL Dilution Parameter Flag Result Result Result Units SDL(Unadjusted) (Unadjusted) Total Copper < 0.000843 < 0.00500 < 0.000843 mg/L 0.0008430.0050.000843

Sample: 207812 - HLSF-0143-HMW-041-0809

Laboratory: Lubbock

Analysis: Explosives (8330) Analytical Method: S 8330-C18 Prep Method: S 3535A QC Batch: 62929Date Analyzed: 2009-08-26 Analyzed By: DSPrep Batch: Sample Preparation: 537082009-08-26 Prepared By: DS

		SDL	MQL	Method					
		Based	Based	Blank				MQL	MDL
Parameter	Flag	Result	Result	Result	Units	$\operatorname{Dilution}$	SDL	(Unadjusted)	(Unadjusted)
HMX	U	< 0.123	< 0.500	< 0.123	$\mu \mathrm{g/L}$	1	0.123	0.5	0.123
RDX	U	< 0.298	< 0.500	< 0.298	$\mu { m g/L}$	1	0.298	0.5	0.298
1,3,5-Trinitrobenzene	U	< 0.339	< 0.500	< 0.339	$\mu { m g/L}$	1	0.339	0.5	0.339
1,3-Dinitrobenzene	U	< 0.389	< 0.500	< 0.389	$\mu { m g/L}$	1	0.389	0.5	0.389
Nitrobenzene	U	< 0.379	< 0.500	< 0.379	$\mu { m g/L}$	1	0.379	0.5	0.379
Tetryl	U	< 0.413	< 0.500	< 0.413	$\mu { m g/L}$	1	0.413	0.5	0.413
TNT	U	< 0.464	< 0.500	< 0.464	$\mu { m g/L}$	1	0.464	0.5	0.464
4-Amino-DNT	U	< 0.319	< 0.500	< 0.319	$\mu { m g/L}$	1	0.319	0.5	0.319
2-Amino-DNT	U	< 0.391	< 0.500	< 0.391	$\mu { m g/L}$	1	0.391	0.5	0.391
2,6-DNT	U	< 0.323	< 0.500	< 0.323	$\mu \mathrm{g/L}$	1	0.323	0.5	0.323
2,4-DNT	U	< 0.366	< 0.500	< 0.366	$\mu { m g/L}$	1	0.366	0.5	0.366
2-NT	U	< 0.379	< 0.500	< 0.379	$\mu { m g/L}$	1	0.379	0.5	0.379
4-NT	U	< 0.398	< 0.500	< 0.398	$\mu { m g/L}$	1	0.398	0.5	0.398
3-NT	U	< 0.346	< 0.500	< 0.346	μ_g/L	1	0.346	0.5	0.346

					Spike	$\operatorname{Percent}$	Recovery
Surrogate	Flag	Result	Units	Dilution	${f Amount}$	Recovery	Limits
1,2-Dinitrobenzene		1.69	$\mu \mathrm{g/L}$	1	2.50	68	19.8 - 160

Sample: 207812 - HLSF-0143-HMW-041-0809

Laboratory: Lubbock

Analysis: Fe, Total Analytical Method: S 6010B Prep Method: S 3010A QC Batch: 63055Date Analyzed: 2009-08-31 Analyzed By: RRPrep Batch: 53818Sample Preparation: 2009-08-31 Prepared By: KV

Report Date: September 4, 2009 Work Order: 9082611 Page Number: 10 of 76

HELSTF Chromate Spill Groundwater

		SDL	MQL	Method					
		Based	Based	Blank				MQL	MDL
Parameter	Flag	Result	Result	Result	Units	$\operatorname{Dilution}$	SDL	(Unadjusted)	(Unadjusted)
Total Iron		0.0590	0.0590	< 0.000872	mg/L	1	0.000872	0.01	0.000872

Sample: 207812 - HLSF-0143-HMW-041-0809

Laboratory: Lubbock

Analysis: Fluoride (IC) Analytical Method: E 300.0 Prep Method: N/AQC Batch: 62950 Analyzed By: Date Analyzed: 2009-08-26 SSPrep Batch: 53722Sample Preparation: 2009-08-26 Prepared By: SS

SDLMQLMethod Based Based Blank MQLMDL Parameter Result Units Dilution SDLFlag Result Result (Unadjusted) (Unadjusted) Fluoride <1.02 < 2.50 <1.02 mg/L1.02 0.5 0.204 5

Sample: 207812 - HLSF-0143-HMW-041-0809

Laboratory: Lubbock

N/AAnalysis: Hg, Total Analytical Method: S 7470A Prep Method: QC Batch: 2009-08-27 Analyzed By: TP62974 Date Analyzed: Prep Batch: Sample Preparation: 2009-08-27 Prepared By: TP53720

SDLMQL Method Based MQLMDL Based Blank Parameter Flag Result Result Result Units Dilution SDL(Unadjusted) (Unadjusted) Total Mercury < 0.0000329 < 0.000200 < 0.0000329 0.00003290.0002 3.29e-05mg/L

Sample: 207812 - HLSF-0143-HMW-041-0809

Laboratory: Lubbock

Analysis: K, Total Analytical Method: S 6010B Prep Method: S 3010A QC Batch: 63131 Date Analyzed: 2009-09-01 Analyzed By: RRPrep Batch: 53818 Sample Preparation: 2009-08-31 Prepared By: KV

SDLMQLMethod MQLMDL Based Based Blank SDL Parameter Flag Result Result Result Units Dilution (Unadjusted) (Unadjusted) Total Potassium $\overline{143}$ $\overline{143}$ < 1.72mg/L10 1.72 0.172

Sample: 207812 - HLSF-0143-HMW-041-0809

Laboratory: Lubbock

Analysis: Mg, Total Analytical Method: S 6010B Prep Method: S 3010A

Report Date: September 4, 2009 Work Order: 9082611 Page Number: 11 of 76 HELSTF Chromate Spill Groundwater

QC Batch: Prep Batch:			Analyzed: e Preparation:	2009-09-01 2009-08-31	Analyzed By: Prepared By:	
	SDL	MQL	Method			

		SDL	MQL	Method					
		Based	Based	Blank				MQL	MDL
Parameter	Flag	Result	Result	Result	Units	$\operatorname{Dilution}$	SDL	(Unadjusted)	(Unadjusted)
Total Magnesium		776	776	< 1.60	m mg/L	10	1.60	1	0.16

Sample: 207812 - HLSF-0143-HMW-041-0809

Laboratory:	$\operatorname{Lubbock}$								
Analysis:	Mn, Total		Analyti	cal Method:	S 601	.0B		Prep Metho	od: S 3010A
QC Batch:	63055		Date A	nalyzed:	2009-	08-31		Analyzed B	y: RR
Prep Batch:	53818		$_{ m Sample}$	Preparation	2009-	08-31		Prepared B	y: KV
		SDL	MQL	Method					
		Based	Based	Blank				MQL	MDL
Parameter	Flag	Result	Result	Result	Units	Dilution	SDL	(Unadjusted)	(Unadjusted)
Total Manga	nese U	< 0.000305	< 0.00250	< 0.000305	mg/L	1	0.000305	0.0025	0.000305

Sample: 207812 - HLSF-0143-HMW-041-0809

Laboratory: Analysis: QC Batch: Prep Batch:	Lubbock Mo, Tot 63055 53818			Analytical Method: Date Analyzed: Sample Preparation:			010B 9-08-31 9-08-31		Prep Metho Analyzed B Prepared B	•
			SDL	MQL	Method					
			Based	Based	Blank				MQL	MDL
Parameter		Flag	Result	Result	Result	Units	Dilution	SDL	(Unadjusted)	(Unadjusted)
Total Molybo	denum		0.500	0.500	< 0.00119	mg/L	1	0.00119	0.01	0.00119

Sample: 207812 - HLSF-0143-HMW-041-0809

Laboratory: Analysis: QC Batch: Prep Batch:	Lubbock Na, Total 63131 53818		Dat	alytical Meth e Analyzed: aple Prepara	20	6010B 009-09-01 009-08-31		Prep Meth Analyzed E Prepared E	By: RR
		SDL	MQL	Method					
		Based	Based	Blank				MQL	MDL
Parameter	Flag	Result	Result	Result	Units	Dilution	SDL	(Unadjusted)	(Unadjusted)
Total Sodiun	1	3470	3470	< 5.00	mg/L	100	5.00	1	0.05

Sample: 207812 - HLSF-0143-HMW-041-0809

Report Date: September 4, 2009 Work Order: 9082611 Page Number: 12 of 76

HELSTF Chromate Spill Groundwater

Laboratory: Analysis: QC Batch: Prep Batch:	Lubbock Ni, Tota 63055 53818		Date	ytical Metho Analyzed: ble Preparati	200	010B 9-08-31 9-08-31		Prep Metho Analyzed B Prepared B	y: RR
		SDL	MQL	Method					
		Based	Based	Blank				MQL	MDL
Parameter	Flag	Result	Result	Result	Units	Dilution	SDL	(Unadjusted)	(Unadjusted)
Total Nickel	U	< 0.00121	< 0.00500	< 0.00121	mg/L	1	0.00121	0.005	0.00121

Sample: 207812 - HLSF-0143-HMW-041-0809

Laboratory: Lubbock

Analysis: Nitrate and Nitrite as N Analytical Method: SM 4500-NO3 EPrep Method: N/AQC Batch: 63168 Date Analyzed: 2009-08-28 Analyzed By: KVPrep Batch: 53917 Sample Preparation: 2009-08-28 Prepared By: KV

SDLMQLMethod Based MQLMDLBased Blank Flag Parameter Result Result Result Units Dilution SDL(Unadjusted) (Unadjusted) Nitrate and Nitrite as N 140 17.5 140< 17.5mg/L500 0.1 0.035

Sample: 207812 - HLSF-0143-HMW-041-0809

Laboratory: El Paso

Analysis: O/G Analytical Method: Prep Method: N/AE 1664 QC Batch: 63270 Date Analyzed: 2009-09-02 Analyzed By: MDPrep Batch: 54005Sample Preparation: 2009-09-01 Prepared By: MD

SDLMQLMethod Based Based Blank MQLMDLFlag Result SDL Parameter Result Result Units Dilution (Unadjusted) (Unadjusted) Oil and Grease 3.60 < 3.60< 5.00< 3.60mg/L5 3.6

Sample: 207812 - HLSF-0143-HMW-041-0809

Laboratory: Lubbock

Analysis: P, Total Analytical Method: Prep Method: S 3010A S 6010B QC Batch: 63055Date Analyzed: 2009-08-31 Analyzed By: RRPrep Batch: 53818 Sample Preparation: 2009-08-31 Prepared By: KV

SDLMQLMethodBased Based Blank MQLMDLParameter Flag Result Result Result Units Dilution SDL(Unadjusted) (Unadjusted) Total Phosphorous 0.03100.0310< 0.00289 mg/L0.002890.0250.00289

Report Date: September 4, 2009 Work Order: 9082611 Page Number: 13 of 76

HELSTF Chromate Spill Groundwater

Sample: 207812 - HLSF-0143-HMW-041-0809

Laboratory: Lubbock

Analysis: Pb. Total Analytical Method: S 6010B Prep Method: S 3010A QC Batch: 63055 Date Analyzed: 2009-08-31 Analyzed By: RRPrep Batch: 53818 Sample Preparation: 2009-08-31 Prepared By: KV

 SDL MQL Method

Blank MQLBased Based MDL Parameter Result Result Result Units Dilution SDL(Unadjusted) Flag (Unadjusted) Total Lead < 0.00326 < 0.00500 < 0.00326 mg/L0.00326 0.0050.00326

Sample: 207812 - HLSF-0143-HMW-041-0809

Laboratory: El Paso

Analysis: рН Analytical Method: SM 4500-H+Prep Method: N/AQC Batch: 63079 JGDate Analyzed: 2009-08-25 Analyzed By: Prep Batch: 53838 Sample Preparation: 2009-08-25 Prepared By: JR

RL

Sample: 207812 - HLSF-0143-HMW-041-0809

Laboratory: Lubbock

Analysis: Sb. Total Analytical Method: S 6010B Prep Method: S 3010A QC Batch: 63055Date Analyzed: 2009-08-31 Analyzed By: RRPrep Batch: 53818 Sample Preparation: 2009-08-31 Prepared By: KV

SDL MQL Method Based Based Blank

Based Based Blank MQLMDLFlag SDLParameter Result Result Result Units Dilution (Unadjusted) (Unadjusted) < 0.02000.02 Total Antimony < 0.00440< 0.00440mg/L0.004400.0044

Sample: 207812 - HLSF-0143-HMW-041-0809

Laboratory: Lubbock

Analysis: Se, Total Analytical Method: S 6010B Prep Method: S 3010A QC Batch: 63055 Date Analyzed: 2009-08-31 Analyzed By: RRPrep Batch: Sample Preparation: KV53818 2009-08-31 Prepared By:

SDL MQL Method Based Based Blank

MQLMDL Parameter Result Result Result Units Dilution SDL(Unadjusted) Flag (Unadjusted) Total Selenium 0.07600.0760< 0.00508 mg/L0.005080.02 0.00508

HELSTF Chromate Spill Groundwater

Sample: 207812 - HLSF-0143-HMW-041-0809

Laboratory: Lubbock Analysis: Semivolatiles Analytical Method: S 8270C Prep Method: S 3510C QC Batch: Analyzed By: 63035Date Analyzed: 2009-08-28 MN Prep Batch: 53805 Sample Preparation: 2009-08-28 Prepared By: MN

		SDL	MQL	Method				
		Based	Based	Blank			MQL	MDL
Parameter	Flag	Result	Result	Result Unit	s Dilution	$_{ m l}$ SDL	(Unadjusted)	(Unadjusted)
Pyridine	U	< 0.000640	< 0.00526	< 0.000640 mg/	L 1.053	0.000640	0.005	0.000608
N-Nitrosodimethylamine	U	< 0.000581	< 0.00526	< 0.000581 mg/	L 1.053	0.000581	0.005	0.000552
2-Picoline	U	< 0.000430	< 0.00526	< 0.000430 mg/	L 1.053	0.000430	0.005	0.000408
Methyl methanesulfonate	U	< 0.000368	< 0.00526	$< 0.000368 \mathrm{mg}/$	L 1.053	0.000368	0.005	0.00035
Ethyl methanesulfonate	U	< 0.000472	< 0.00526	< 0.000472 mg/	L 1.053	0.000472	0.005	0.000448
Phenol	U	< 0.000536	< 0.00526	< 0.000536 mg/	L 1.053	0.000536	0.005	0.000509
Aniline	U	< 0.000728	< 0.00526	< 0.000728 mg/	L 1.053	0.000728	0.005	0.000691
bis(2-chloroethyl) ether	U	< 0.000463	< 0.00526	< 0.000463 mg/	L 1.053	0.000463	0.005	0.00044
2-Chlorophenol	U	< 0.000565	< 0.00526	< 0.000565 mg/	L 1.053	0.000565	0.005	0.000537
1,3-Dichlorobenzene (meta)	U	< 0.000464	< 0.00526	< 0.000464 mg/	L 1.053	0.000464	0.005	0.000441
1,4-Dichlorobenzene (para)	U	< 0.000463	< 0.00526	< 0.000463 mg/	L 1.053	0.000463	0.005	0.00044
Benzyl alcohol	U	< 0.000566	< 0.00526	< 0.000566 mg/	L 1.053	0.000566	0.005	0.000538
1,2-Dichlorobenzene (ortho)	U	< 0.000466	< 0.00526	< 0.000466 mg/	L 1.053	0.000466	0.005	0.000443
2-Methylphenol	U	< 0.000764	< 0.00526	< 0.000764 mg/	L 1.053	0.000764	0.005	0.000726
bis(2-chloroisopropyl)ether	U			< 0.000530 mg/		0.000530	0.005	0.000503
4-Methylphenol / 3-Methylphenol	U	< 0.000539	< 0.00526	$< 0.000539 \mathrm{mg}/$	L 1.053	0.000539	0.005	0.000512
N-Nitrosodi-n-propylamine	U	< 0.000771	< 0.00526	< 0.000771 mg/	L 1.053	0.000771	0.005	0.000732
$\operatorname{Hexachloroethane}$	U	< 0.000534	< 0.00526	< 0.000534 mg/	L 1.053	0.000534	0.005	0.000507
f Acetophenone	U	< 0.000446	< 0.00526	< 0.000446 mg/	L 1.053	0.000446	0.005	0.000424
Nitrobenzene	U	< 0.000490	< 0.00526	< 0.000490 mg/	L 1.053	0.000490	0.005	0.000465
N-Nitrosopiperidine	U	< 0.000466	< 0.00526	< 0.000466 mg/	L 1.053	0.000466	0.005	0.000443
Isophorone	U	< 0.000652	< 0.00526	< 0.000652 mg/	L 1.053	0.000652	0.005	0.000619
2-Nitrophenol	U	< 0.000428	< 0.00526	< 0.000428 mg/	L 1.053	0.000428	0.005	0.000406
2,4-Dimethylphenol	U	< 0.000502	< 0.00526	< 0.000502 mg/	L 1.053	0.000502	0.005	0.000477
bis(2-chloroethoxy) methane	U	< 0.000455	< 0.00526	< 0.000455 mg/	L 1.053	0.000455	0.005	0.000432
2,4-Dichlorophenol	U	< 0.000421	< 0.00526	< 0.000421 mg/	L 1.053	0.000421	0.005	0.0004
1,2,4-Trichlorobenzene	U	< 0.000425	< 0.00526	< 0.000425 mg/	L 1.053	0.000425	0.005	0.000404
Benzoic acid	U	< 0.00172	< 0.00526	< 0.00172 mg/	L 1.053	0.00172	0.005	0.00163
Naphthalene	U	< 0.000515	< 0.00526	< 0.000515 mg/	L 1.053	0.000515	0.005	0.000489
a,a-Dimethylphenethylamine	U	< 0.00136	< 0.00526	$< 0.00136 \mathrm{mg}/$	L 1.053	0.00136	0.005	0.00129
4-Chloroaniline	U	< 0.000398	< 0.00526	< 0.000398 mg/	L 1.053	0.000398	0.005	0.000378
2,6-Dichlorophenol	U	< 0.000510	< 0.0105	< 0.000510 mg/	L 1.053	0.000510	0.01	0.000484
Hexachlorobutadiene	U	< 0.000544	< 0.00526	< 0.000544 mg/	L 1.053	0.000544	0.005	0.000517
N-Nitroso-di-n-butylamine	U	< 0.000691	< 0.00526	< 0.000691 mg/	L 1.053	0.000691	0.005	0.000656
4-Chloro-3-methylphenol	U	< 0.000550	< 0.00526	$< 0.000550 \mathrm{mg}/$	L 1.053	0.000550	0.005	0.000522
2-Methylnaphthalene	U	< 0.000445	< 0.00526	< 0.000445 mg/	L 1.053	0.000445	0.005	0.000423
1-Methylnaphthalene	U			<0.000521 mg/		0.000521	0.005	0.000495
1,2,4,5-Tetrachlorobenzene	U			<0.000644 mg/		0.000644	0.005	0.000612
Hexachlorocyclopentadiene	U			<0.000588 mg/		0.000588	0.005	0.000558
2,4,6-Trichlorophenol	U	< 0.000836	< 0.0105	< 0.000836 mg/	L 1.053	0.000836	0.01	0.000794

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sample 207812 continued . . .

		SDL	MQL	Method					
		Based	Based	Blank				MQL	MDL
Parameter	Flag	Result	Result	Result	Units	Dilution	SDL	(Unadjusted)	(Unadjusted)
2,4,5-Trichlorophenol	U	< 0.000878	< 0.00526	< 0.000878	mg/L	1.053	0.000878	0.005	0.000834
$2 ext{-Chloronaphthalene}$	U	< 0.000438	< 0.00526	< 0.000438	mg/L	1.053	0.000438	0.005	0.000416
$1 ext{-} ext{Chloronaphthalene}$	U	< 0.000501	< 0.00526	< 0.000501	mg/L	1.053	0.000501	0.005	0.000476
2-Nitroaniline	U	< 0.000800	< 0.00526	< 0.000800	mg/L	1.053	0.000800	0.005	0.00076
${\bf Dimethyl phthal ate}$	U	< 0.000677	< 0.00526	< 0.000677	mg/L	1.053	0.000677	0.005	0.000643
${ m Acenaphthylene}$	U	< 0.000617	< 0.00526	< 0.000617	mg/L	1.053	0.000617	0.005	0.000586
2,6-Dinitrotoluene	U	< 0.000674	< 0.00526	< 0.000674	mg/L	1.053	0.000674	0.005	0.00064
3-Nitroaniline	U	< 0.000759	< 0.00526	< 0.000759	mg/L	1.053	0.000759	0.005	0.000721
${ m Acenaphthene}$	U	< 0.000445	< 0.00526	< 0.000445	mg/L	1.053	0.000445	0.005	0.000423
2,4-Dinitrophenol	U	< 0.000232	< 0.00526	< 0.000232	mg/L	1.053	0.000232	0.005	0.00022
Dibenzofuran	U	< 0.000430	< 0.00526	< 0.000430	mg/L	1.053	0.000430	0.005	0.000408
${ m Pentachlorobenzene}$	U	< 0.000601	< 0.00526	< 0.000601	mg/L	1.053	0.000601	0.005	0.000571
4-Nitrophenol	U	< 0.00195	< 0.0263	< 0.00195	mg/L	1.053	0.00195	0.025	0.00185
2,4-Dinitrotoluene	U	< 0.000959	< 0.00526	< 0.000959	mg/L	1.053	0.000959	0.005	0.000911
1-Naphthylamine	U	< 0.000724	< 0.00526	< 0.000724	mg/L	1.053	0.000724	0.005	0.000688
2,3,4,6-Tetrachlorophenol	U	< 0.000595	< 0.0105	< 0.000595	mg/L	1.053	0.000595	0.01	0.000565
2-Naphthylamine	U	< 0.000736	< 0.00526	< 0.000736	mg/L	1.053	0.000736	0.005	0.000699
Fluorene	U	< 0.000682	< 0.00526	< 0.000682	mg/L	1.053	0.000682	0.005	0.000648
4-Chlorophenyl-phenylether	U	< 0.000652	< 0.00526	< 0.000652	mg/L	1.053	0.000652	0.005	0.000619
${ m Diethylphthalate}$	U	< 0.000872	< 0.00526	< 0.000872	mg/L	1.053	0.000872	0.005	0.000828
4-Nitroaniline	U	< 0.000739	< 0.00526	< 0.000739	mg/L	1.053	0.000739	0.005	0.000702
Diphenylhydrazine	U	< 0.000692	< 0.00526	< 0.000692	mg/L	1.053	0.000692	0.005	0.000657
4,6-Dinitro- 2 -methylphenol	U	< 0.00208	< 0.00526	< 0.00208	mg/L	1.053	0.00208	0.005	0.00198
Diphenylamine	U	< 0.000463	< 0.00526	< 0.000463	mg/L	1.053	0.000463	0.005	0.00044
4-Bromophenyl-phenylether	U	< 0.000579	< 0.00526	< 0.000579	mg/L	1.053	0.000579	0.005	0.00055
Phenacetin	U	< 0.000637	< 0.00526	< 0.000637	mg/L	1.053	0.000637	0.005	0.000605
${ m Hexachlorobenzene}$	U	< 0.000533	< 0.00526	< 0.000533	mg/L	1.053	0.000533	0.005	0.000506
4-Aminobiphenyl	U	< 0.000555	< 0.00526	< 0.000555	mg/L	1.053	0.000555	0.005	0.000527
${ m Pentachlorophenol}$	U	< 0.000458	< 0.0105	< 0.000458	mg/L	1.053	0.000458	0.01	0.000435
${ m Anthracene}$	U	< 0.000451	< 0.00526	< 0.000451	mg/L	1.053	0.000451	0.005	0.000428
${\bf Pentach loron it robenzene}$	U	< 0.000430	< 0.00526	< 0.000430	mg/L	1.053	0.000430	0.005	0.000408
Pronamide	U	< 0.000501	< 0.00526	< 0.000501	mg/L	1.053	0.000501	0.005	0.000476
${ m Phenanthrene}$	U	< 0.000577	< 0.00526	< 0.000577	mg/L	1.053	0.000577	0.005	0.000548
${ m Di} ext{-n-butylpht}$ halate	U	< 0.000508				1.053	0.000508	0.005	0.000483
Fluoranthene	U	< 0.000665	< 0.00526	< 0.000665	mg/L	1.053	0.000665	0.005	0.000632
Benzidine	U	< 0.00251	< 0.0263	< 0.00251	mg/L	1.053	0.00251	0.025	0.00238
Pyrene	U	< 0.000761	< 0.00526	< 0.000761	mg/L	1.053	0.000761	0.005	0.000723
${\rm p\text{-}Dimethylaminoazobenzene}$	U	< 0.000950	< 0.00526	< 0.000950	mg/L	1.053	0.000950	0.005	0.000902
${f Butylbenzylphthalate}$	U	< 0.000468	< 0.00526	< 0.000468	mg/L	1.053	0.000468	0.005	0.000445
$\operatorname{Benzo}(\operatorname{a}) \operatorname{anthracene}$	U	< 0.000555	< 0.00526	< 0.000555	mg/L	1.053	0.000555	0.005	0.000527
3,3-Dichlorobenzidine	U	< 0.00124	< 0.00526	< 0.00124	mg/L	1.053	0.00124	0.005	0.00118
Chrysene	U	< 0.000672	< 0.00526	< 0.000672	mg/L	1.053	0.000672	0.005	0.000638
bis(2-ethylhexyl)phthalate	U	< 0.000591	< 0.00526	< 0.000591	mg/L	1.053	0.000591	0.005	0.000561
Di-n-octylphthalate	U	< 0.00122	< 0.00526	< 0.00122	mg/L	1.053	0.00122	0.005	0.00116
Benzo(b)fluoranthene	U	< 0.000926	< 0.00526	< 0.000926	mg/L	1.053	0.000926	0.005	0.000879

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Work Order: 9082611 HELSTF Chromate Spill Groundwater Page Number: 16 of 76

sample	207812	continued			
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		SDL	MQL	Method				
		Based	Based	Blank			MQL	MDL
Parameter	Flag	Result	Result	Result Units	Dilution	SDL	(Unadjusted) (Unadjusted)
Benzo(k)fluoranthene	U	< 0.000890	< 0.00526	< 0.000890 mg/L	1.053	0.000890	0.005	0.000845
7,12-Dimethylbenz(a)anthracene	U	< 0.00107	< 0.00526	$< 0.00107 \mathrm{mg/L}$	1.053	0.00107	0.005	0.00102
Benzo(a)pyrene	U	< 0.00176	< 0.00526	$< 0.00176 \mathrm{mg/L}$	1.053	0.00176	0.005	0.00167
3-Methylcholanthrene	U	< 0.000956	< 0.00526	${<}0.000956\:\mathrm{mg/L}$	1.053	0.000956	0.005	0.000908
${ m Dibenzo(a,j)}$ acridine	U	< 0.00136	< 0.00526	< 0.00136 mg/L	1.053	0.00136	0.005	0.00129
Indeno(1,2,3-cd)pyrene	U	< 0.000908	< 0.00526	${<}0.000908\:\mathrm{mg/L}$	1.053	0.000908	0.005	0.000862
${ m Dibenzo}({ m a,h}) { m anthracene}$	U	< 0.000852	< 0.00526	< 0.000852 mg/L	1.053	0.000852	0.005	0.000809
$\mathrm{Benzo}(\mathrm{g,h,i})\mathrm{perylene}$	U	< 0.000999	< 0.00526	${<}0.000999\:\mathrm{mg/L}$	1.053	0.000999	0.005	0.000949

					Spike	$\operatorname{Percent}$	Recovery
Surrogate	Flag	Result	Units	Dilution	${f Amount}$	Recovery	Limits
2-Fluorophenol		0.0190	$\mathrm{mg/L}$	1.053	0.0800	24	10 - 53.1
${ m Phenol-d5}$		0.0129	m mg/L	1.053	0.0800	16	10 - 36.9
${ m Nitrobenzene-d5}$		0.0325	m mg/L	1.053	0.0800	41	23.8 - 108
2-Fluorobiphenyl		0.0281	m mg/L	1.053	0.0800	35	15.9 - 127
2,4,6-Tribromophenol		0.0441	$\mathrm{mg/L}$	1.053	0.0800	55	10 - 123
Terphenyl-d14		0.0409	m mg/L	1.053	0.0800	51	17.2 - 160

Sample: 207812 - HLSF-0143-HMW-041-0809

Laboratory: Lubbock

Analysis: SO4 (IC) Analytical Method: E 300.0 Prep Method: N/A QC Batch: 62950 Date Analyzed: 2009-08-26 Analyzed By: SS Prep Batch: 53722 Sample Preparation: 2009-08-26 Prepared By: SS

		SDL	$_{ m MQL}$	Method					
		Based	Based	Blank				MQL	MDL
Parameter	Flag	Result	Result	Result	Units	Dilution	SDL	(Unadjusted)	(Unadjusted)
Sulfate		8420	8420	<153	m mg/L	1000	153	2.5	0.153

Sample: 207812 - HLSF-0143-HMW-041-0809

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Laboratory: El Paso

Analysis: TDS Analytical Method: SM 2540C Prep Method: N/A QC Batch: 63232 Date Analyzed: 2009-08-27 Analyzed By: MD Prep Batch: 53968 Sample Preparation: 2009-08-27 Prepared By: JG

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		$2 \mathrm{DT}$	MQL	Metnoa					
		Based	Based	Blank				MQL	MDL
Parameter	Flag	Result	Result	Result	Units	Dilution	SDL	(Unadjusted)	(Unadjusted)
Total Dissolved Solids		16200	16200	< 5.00	mg/L	1	5.00		5

HELSTF Chromate Spill Groundwater

Sample: 207812 - HLSF-0143-HMW-041-0809

Laboratory: Lubbock

Analysis: TKN Analytical Method: E 351.3 Prep Method: N/AQC Batch: 63112 Date Analyzed: 2009-08-31 Analyzed By: AHPrep Batch: 53865Sample Preparation: 2009-08-31 Prepared By: AH

SDL MQL Method

MQLMDLBased Based Blank Parameter Result Result Result Units Dilution SDL(Unadjusted) Flag (Unadjusted) Total Kjeldahl Nitrogen - N < 2.45 <10.0 < 2.45mg/L 2.4510 2.45 1

Sample: 207812 - HLSF-0143-HMW-041-0809

Laboratory: Lubbock

Analysis: Tl, Total Analytical Method: S 6010B Prep Method: S 3010A QC Batch: 2009-08-31 Analyzed By: 63055Date Analyzed: RRPrep Batch: 53818 Sample Preparation: 2009-08-31 Prepared By: KV

 $\begin{array}{cccc} & & SDL & MQL & Method \\ Based & Based & Blank \\ Parameter & Flag & Result & Result & Result \end{array}$

< 0.00488

MQLMDL SDLDilution Result Result Units (Unadjusted) (Unadjusted) < 0.0500 < 0.00488mg/L1 0.00488 0.050.00488

Sample: 207812 - HLSF-0143-HMW-041-0809

Laboratory: Lubbock

Total Thallium

Analysis: TOC Analytical Method: SM 5310CPrep Method: N/AQC Batch: 63285 Date Analyzed: 2009-09-04 Analyzed By: KVPrep Batch: 54014Sample Preparation: 2009-09-04 Prepared By: KV

SDL MQL Method

Based MQLMDL Based Blank (Unadjusted) Parameter Result Result Result Dilution SDLFlag Units (Unadjusted) Total Organic Carbon 1.211.21< 0.401mg/L0.4010.401

Sample: 207812 - HLSF-0143-HMW-041-0809

Laboratory: Lubbock

Analysis: Total Cyanide Analytical Method: SM 4500-CN C,E Prep Method: N/AQC Batch: 63080 2009-08-31 AHDate Analyzed: Analyzed By: Prep Batch: 53840 Sample Preparation: 2009-08-31 Prepared By: AH

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sample 207812 continued . . .

Parameter	Flag	SDL Based Result	$egin{array}{l} \mathrm{MQL} \\ \mathrm{Based} \\ \mathrm{Result} \end{array}$	Method Blank Result	Units	Dilution	SDL	m MQL (Unadjusted)	MDL (Unadjusted)
		SDL	MQL	Method					
		$_{ m Based}$	Based	Blank				MQL	MDL
Parameter	Flag	Result	Result	Result	Units	Dilution	SDL	(Unadjusted)	(Unadjusted)
Total Cyanide	U	< 0.0110	< 0.0150	< 0.0110	mg/L	1	0.0110	0.015	0.011

Sample: 207812 - HLSF-0143-HMW-041-0809

Laboratory: Lubbock

Analysis: TPH DRO Analytical Method: Prep Method: N/A Mod. 8015B

QC Batch: 62994 Date Analyzed: 2009-08-27 Analyzed By: Prep Batch: Sample Preparation: Prepared By: 53761 2009-08-27

SDLMQLMethod Based Based Blank MQLMDLSDLParameter Flag Result Result Result Units Dilution (Unadjusted) (Unadjusted) DRO < 5.00< 0.8760.876 < 0.876mg/L5 0.876

					Spike	Percent	Recovery
$\operatorname{Surrogate}$	Flag	Result	Units	Dilution	${f Amount}$	Recovery	Limits
n-Triacontane		9.55	$\mathrm{mg/L}$	1	10.0	96	34.4 - 185

Sample: 207812 - HLSF-0143-HMW-041-0809

Laboratory: Lubbock

Analysis: TPH GRO Analytical Method: S 8015BPrep Method: S 5030B QC Batch: 62920 Date Analyzed: 2009-08-26 Analyzed By: ERPrep Batch: Sample Preparation: 2009-08-26 53703Prepared By: ER

SDLMQLMethod Based Based Blank MQLMDLParameter Flag Result Result Result Units Dilution SDL(Unadjusted) (Unadjusted) GRO < 0.152< 0.200 < 0.152mg/L0.1520.2 0.1521

Surrogate	Flag	Result	Units	Dilution	$\begin{array}{c} {\rm Spike} \\ {\rm Amount} \end{array}$	Percent Recovery	$egin{array}{l} { m Recovery} \\ { m Limits} \end{array}$
Trifluorotoluene (TFT)		0.0982	mg/L	1	0.100	98	70.8 - 112
4-Bromofluorobenzene (4-BFB)		0.0984	$\mathrm{mg/L}$	1	0.100	98	80 - 109

Sample: 207812 - HLSF-0143-HMW-041-0809

Laboratory: Lubbock

Report Date: September 4, 2009 Work Order: 9082611 Page Number: 19 of 76

HELSTF Chromate Spill Groundwater

Analysis: QC Batch: Prep Batch:	V, Total 63055 53818		Date	lytical Method Analyzed: ple Preparatio	200	010B 9-08-31 9-08-31		Prep Metho Analyzed B Prepared B	y: RR
		SDL	MQL	Method					
		Based	Based	Blank				MQL	MDL
Parameter	Flag	Result	Result	Result	Units	Dilution	SDL	(Unadjusted)	(Unadjusted)
Total Vanadi	um	0.0190	0.0190	< 0.000426	mg/L	1	0.000426	0.005	0.000426

Sample: 207812 - HLSF-0143-HMW-041-0809

Laboratory: Lubbock

Analysis: Zn, Total Analytical Method: S 6010B Prep Method: S 3010A QC Batch: 63055Date Analyzed: 2009-08-31 Analyzed By: RRPrep Batch: 53818Sample Preparation: 2009-08-31 Prepared By: KV

SDLMQLMethod BlankMQLMDL Based Based Result Dilution SDLParameter Flag Result Result Units(Unadjusted) (Unadjusted) Total Zinc 0.005000.00500< 0.000465 mg/L0.0004650.0050.000465

Method Blank (1)

QC Batch: 62920 Date Analyzed: 2009-08-26 Analyzed By: ER
Prep Batch: 53703 QC Preparation: 2009-08-26 Prepared By: ER

							Reporting
Parameter	Flag		Result		Units		Limits
GRO			< 0.152		${ m mg/L}$		0.152
					Spike	Percent	Recovery
$\operatorname{Surrogate}$	Flag	Result	Units	Dilution	${f Amount}$	Recovery	Limits
Trifluorotoluene (TFT)		0.0932	m mg/L	1	0.100	93	70.8 - 112
4-Bromofluorobenzene (4-BFB)	0.0940	$_{ m mg/L}$	1	0.100	94	80 - 109

Method Blank (1)

QC Batch: 62929 Date Analyzed: 2009-08-26 Analyzed By: DS
Prep Batch: 53708 QC Preparation: 2009-08-26 Prepared By: DS

				Reporting
Parameter	Flag	Result	Units	Limits
HMX		< 0.123	$\mu { m g}/{ m L}$	0.123
RDX		< 0.298	$\mu { m g}/{ m L}$	0.298
1,3,5-Trinitrobenzene		< 0.339	$\mu { m g}/{ m L}$	0.339

 $continued \dots$

Fluoride

Work Order: 9082611 HELSTF Chromate Spill Groundwater Page Number: 20 of 76

method blank continued	<i>l</i>					
_	_					Reporting
Parameter 1.2 Dinitrohongons	F	lag	Result < 0.389	Units		Limits
1,3-Dinitrobenzene Nitrobenzene			< 0.389 < 0.379	$\mu \mathrm{g}/\mathrm{L}$		$0.389 \\ 0.379$
Tetryl			<0.379	$\mu \mathrm{g}/\mathrm{L}$		0.379 0.413
TNT			< 0.413	$ m \mu g/L m \mu g/L$		0.413 0.464
4-Amino-DNT			< 0.319	$\mu \mathrm{g}/\mathrm{L}$		0.319
2-Amino-DNT			< 0.391	$\mu \mathrm{g}/\mathrm{L}$		0.391
2,6-DNT			< 0.323	$\mu \mathrm{g}/\mathrm{L}$		0.323
2,4-DNT			< 0.366	$\mu \mathrm{g}/\mathrm{L}$		0.366
2-NT			< 0.379	$\mu \mathrm{g}/\mathrm{L}$		0.379
4-NT			< 0.398	$\mu { m g}/{ m L}$		0.398
3-NT			< 0.346	$\mu { m g}/{ m L}$		0.346
				Spike	Percent	Recovery
Surrogate	Flag Res	sult Units	Dilution	$\overline{ m Amount}$	Recovery	$\operatorname{Limits}^{"}$
1,2-Dinitrobenzene		$\mu g/L$	1	2.50	105	19.8 - 160
Method Blank (1) QC Batch: 62950 Prep Batch: 53722		Date Analy QC Prepara				vzed By: SS ared By: SS
Parameter	Flag	1	Result	Units		Reporting Limits
Bromide	riag		(0.192	mg/L		0.192
			VO50-	0/ —		3.131
Method Blank (1) QC Batch: 62950		Date Analy	zed: 2009-08-26		Anals	zed By: SS
Prep Batch: 53722		QC Prepara			-	ared By: SS
D	DI	-	D 1/	TT 's		Reporting
Parameter Chloride	Flag		Result	Units		Limits
Cmoride			<0.157	m mg/L		0.157
Method Blank (1)						
QC Batch: 62950 Prep Batch: 53722		Date Analy QC Prepara				vzed By: SS ared By: SS
D		_	D 1	.		Reporting
Parameter	Flag		Result	Units		Limits

< 0.204

mg/L

0.204

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HELSTF Chromate Spill Groundwater

Method Blank (1)

QC Batch: 62950 Date Analyzed: 2009-08-26 Analyzed By: SS Prep Batch: 53722 QC Preparation: 2009-08-26 Prepared By: SS

Method Blank (1)

QC Batch: 62974 Date Analyzed: 2009-08-27 Analyzed By: TP
Prep Batch: 53720 QC Preparation: 2009-08-27 Prepared By: TP

Tep Batch. 95720 GO Treparation. 2009-00-27 Trepared By. 11

Method Blank (1)

QC Batch: 62994 Date Analyzed: 2009-08-27 Analyzed By: Prep Batch: 53761 QC Preparation: 2009-08-27 Prepared By:

Reporting

Spike Recovery Surrogate Flag Result Units Dilution Amount Recovery Limits 9.03 90 34.4 - 185 n-Triacontane mg/L10.0

Method Blank (1)

QC Batch: 63013 Date Analyzed: 2009-08-24 Analyzed By: MD Prep Batch: 53774 QC Preparation: 2009-08-24 Prepared By: MD

Method Blank (1)

QC Batch: 63035 Date Analyzed: 2009-08-28 Analyzed By: MN
Prep Batch: 53805 QC Preparation: 2009-08-28 Prepared By: MN

Work Order: 9082611 HELSTF Chromate Spill Groundwater

				Reporting
Parameter	Flag	Result	Units	Limits
Pyridine		< 0.000608	$\mathrm{mg/L}$	0.000608
N-Nitrosodimethylamine		< 0.000552	m mg/L	0.000552
2-Picoline		< 0.000408	m mg/L	0.000408
Methyl methanesulfonate		< 0.000350	m mg/L	0.00035
Ethyl methanesulfonate		< 0.000448	m mg/L	0.000448
Phenol		< 0.000509	m mg/L	0.000509
Aniline		< 0.000691	m mg/L	0.000691
bis(2-chloroethyl)ether		< 0.000440	m mg/L	0.00044
2-Chlorophenol		< 0.000537	m mg/L	0.000537
1,3-Dichlorobenzene (meta)		< 0.000441	m mg/L	0.000441
1,4-Dichlorobenzene (para)		< 0.000440	m mg/L	0.00044
Benzyl alcohol		< 0.000538	m mg/L	0.000538
1,2-Dichlorobenzene (ortho)		< 0.000443	m mg/L	0.000443
2-Methylphenol		< 0.000726	m mg/L	0.000726
${ m bis}(2 ext{-chloroisopropyl}) { m ether}$		< 0.000503	m mg/L	0.000503
4-Methylphenol / 3 -Methylphenol		< 0.000512	m mg/L	0.000512
N-Nitrosodi-n-propylamine		< 0.000732	m mg/L	0.000732
$\operatorname{Hexachloroethane}$		< 0.000507	m mg/L	0.000507
$egin{array}{c} Acetophenone \end{array}$		< 0.000424	m mg/L	0.000424
Nitrobenzene		< 0.000465	m mg/L	0.000465
N-Nitrosopiperidine		< 0.000443	m mg/L	0.000443
Isophorone		< 0.000619	m mg/L	0.000619
2-Nitrophenol		< 0.000406	m mg/L	0.000406
2,4-Dimethylphenol		< 0.000477	m mg/L	0.000477
bis(2-chloroethoxy) methane		< 0.000432	m mg/L	0.000432
2,4-Dichlorophenol		< 0.000400	m mg/L	0.0004
1,2,4-Trichlorobenzene		< 0.000404	m mg/L	0.000404
Benzoic acid		< 0.00163	m mg/L	0.00163
Naphthalene		< 0.000489	m mg/L	0.000489
a,a-Dimethylphenethylamine		< 0.00129	m mg/L	0.00129
4-Chloroaniline		< 0.000378	m mg/L	0.000378
2,6-Dichlorophenol		< 0.000484	m mg/L	0.000484
$\operatorname{Hexachlorobutadiene}$		< 0.000517	m mg/L	0.000517
N-Nitroso-di-n-butylamine		< 0.000656	m mg/L	0.000656
4-Chloro-3-methylphenol		< 0.000522	m mg/L	0.000522
2-Methylnaphthalene		< 0.000423	m mg/L	0.000423
$1 ext{-} ext{Methylnaphthalene}$		< 0.000495	m mg/L	0.000495
1,2,4,5-Tetrachlorobenzene		< 0.000612	m mg/L	0.000612
${\bf Hexach lorocyclopentadiene}$		< 0.000558	m mg/L	0.000558
2,4,6-Trichlorophenol		< 0.000794	m mg/L	0.000794
2,4,5-Trichlorophenol		< 0.000834	m mg/L	0.000834
2-Chloronaphthalene		< 0.000416	m mg/L	0.000416
1-Chloronaphthalene		< 0.000476	m mg/L	0.000476
2-Nitroaniline		< 0.000760	m mg/L	0.00076
${\bf Dimethylphthalate}$		< 0.000643	m mg/L	0.000643
${\it Acenaphthylene}$		< 0.000586	m mg/L	0.000586
2,6-Dinitrotoluene		< 0.000640	m mg/L	0.00064
3-Nitroaniline		< 0.000721	m mg/L	0.000721
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continued . . .

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Work Order: 9082611 HELSTF Chromate Spill Groundwater

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$method\ blank\ continued$. . .

				Reporting
Parameter	Flag	Result	Units	Limits
Acenaphthene		< 0.000423	m mg/L	0.000423
2,4-Dinitrophenol		< 0.000220	m mg/L	0.00022
Dibenzofuran		< 0.000408	m mg/L	0.000408
${ m Pentachlorobenzene}$		< 0.000571	m mg/L	0.000571
4-Nitrophenol		< 0.00185	m mg/L	0.00185
2,4-Dinitrotoluene		< 0.000911	m mg/L	0.000911
1-Naphthylamine		< 0.000688	m mg/L	0.000688
2,3,4,6-Tetrachlorophenol		< 0.000565	m mg/L	0.000565
2-Naphthylamine		< 0.000699	m mg/L	0.000699
Fluorene		< 0.000648	m mg/L	0.000648
4-Chlorophenyl-phenylether		< 0.000619	m mg/L	0.000619
Diethylphthalate		< 0.000828	m mg/L	0.000828
4-Nitroaniline		< 0.000702	m mg/L	0.000702
Diphenylhydrazine		< 0.000657	m mg/L	0.000657
4,6-Dinitro-2-methylphenol		< 0.00198	m mg/L	0.00198
Diphenylamine		< 0.000440	m mg/L	0.00044
4-Bromophenyl-phenylether		< 0.000550	m mg/L	0.00055
Phenacetin		< 0.000605	m mg/L	0.000605
Hexachlorobenzene		< 0.000506	m mg/L	0.000506
4-Aminobiphenyl		< 0.000527	m mg/L	0.000527
Pentachlorophenol		< 0.000435	m mg/L	0.000435
Anthracene		< 0.000428	m mg/L	0.000428
Pentachloronitrobenzene		< 0.000408	m mg/L	0.000408
Pronamide		< 0.000476	m mg/L	0.000476
Phenanthrene		< 0.000548	m mg/L	0.000548
Di-n-butylphthalate		< 0.000483	m mg/L	0.000483
Fluoranthene		< 0.000632	m mg/L	0.000632
Benzidine		< 0.00238	m mg/L	0.00238
Pyrene		< 0.000723	m mg/L	0.000723
p-Dimethylaminoazobenzene		< 0.000902	m mg/L	0.000902
Butylbenzylphthalate		0.000480	m mg/L	0.000445
Benzo(a) anthracene		< 0.000527	m mg/L	0.000527
3,3-Dichlorobenzidine		< 0.00118	m mg/L	0.00118
Chrysene		< 0.000638	m mg/L	0.000638
bis(2-ethylhexyl)phthalate		< 0.000561	m mg/L	0.000561
Di-n-octylphthalate		< 0.00116	m mg/L	0.00116
Benzo(b)fluoranthene		< 0.000110	m mg/L	0.000879
Benzo(k)fluoranthene		< 0.000845	$\frac{\mathrm{mg}/\mathrm{L}}{\mathrm{mg}/\mathrm{L}}$	0.000845
7,12-Dimethylbenz(a)anthracene		< 0.00102	m mg/L	0.00102
Benzo(a) pyrene		< 0.00167	$\frac{\mathrm{mg}/\mathrm{L}}{\mathrm{mg}/\mathrm{L}}$	0.00162 0.00167
3-Methylcholanthrene		< 0.000908	m mg/L	0.000908
Dibenzo(a,j)acridine		< 0.00129	$\frac{\mathrm{mg}/\mathrm{L}}{\mathrm{mg}/\mathrm{L}}$	0.00129
Indeno $(1,2,3\text{-cd})$ pyrene		< 0.00123	$\frac{\mathrm{mg}/\mathrm{L}}{\mathrm{mg}/\mathrm{L}}$	0.000862
Dibenzo (a,h) anthracene		< 0.000802	$\frac{\mathrm{mg}/\mathrm{L}}{\mathrm{mg}/\mathrm{L}}$	0.000802
$\operatorname{Benzo}(g,h,i)\operatorname{perylene}$		< 0.000309	m mg/L	0.000809
Demo(8,11,1) ber Arene		V:000343	mg/L	0.000949

Prep Batch: 53818

Method Blank (1)

Method Blank (1)

Method Blank (1)

 ${\it Work~Order:~9082611} \\ {\it HELSTF~Chromate~Spill~Groundwater}$

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Prepared By: KV

Surrogate	Flag	Result	Units	Dilution	$egin{array}{c} ext{Spike} \ ext{Amount} \end{array}$	Percent Recovery	$rac{ m Recovery}{ m Limits}$
2-Fluorophenol		0.0192	mg/L	1	0.0800	24	10 - 53.1
Phenol-d5		0.0125	$_{ m mg/L}$	1	0.0800	16	10 - 36.9
Nitrobenzene-d5		0.0367	$_{ m mg/L}$	1	0.0800	46	23.8 - 108
2-Fluorobiphenyl		0.0354	$_{ m mg/L}$	1	0.0800	44	15.9 - 127
2,4,6-Tribromophenol		0.0445	$_{ m mg/L}$	1	0.0800	56	10 - 123
Terphenyl-d14		0.0540	$\mathrm{mg/L}$	1	0.0800	68	17.2 - 160
Terphenyl-d14		0.0540	mg/L	1	0.0800	68	17.2 -
Method Blank (1)							
QC Batch: 63055		Dat	e Analyzed:	2009-08-31		Analyz	ed By: RR

				Reporting
Parameter	Flag	\mathbf{Result}	Units	Limits
Total Silver		< 0.00111	m mg/L	0.00111

QC Preparation: 2009-08-31

QC Batch: Prep Batch:		Date Analyzed: QC Preparation:			Analyzed By: Prepared By:	
D .	T)	Т.	1.	TT 1.	Repo	orting

Parameter	Flag	Result	Units	Limits
Total Aluminum		< 0.00301	m mg/L	0.00301

QC Batch: 63055 Date Analyzed: 2009-08-31 Analyzed By: RR Prep Batch: 53818 QC Preparation: 2009-08-31 Prepared By: KV

Parameter	Flag	Result	Units	Limits
Total Arsenic		< 0.00448	m mg/L	0.00448

QC Batch: Prep Batch:	Date Analyzed: QC Preparation:	Analyzed By: Prepared By:	
		Rene	arting

Parameter	Flag	Result	Units	Limits
Total Barium		< 0.00105	m mg/L	0.00105

Report Date: September 4, 2009 Work Order: 9082611 HELSTF Chromate Spill Grou Page Number: 25 of 76

		HELSTF Chromate Spill Ground	water	
Method Blank (1)				
QC Batch: 63055 Prep Batch: 53818		Date Analyzed: 2009-08-31 QC Preparation: 2009-08-31		Analyzed By: RR Prepared By: KV
Parameter	Flag	Result	${ m Units}$	Reporting Limits
Total Beryllium	1145	< 0.000450	mg/L	0.00045
Method Blank (1)				
QC Batch: 63055		Date Analyzed: 2009-08-31		Analyzed By: RR
Prep Batch: 53818		QC Preparation: 2009-08-31		Prepared By: KV
Parameter	Flag	Result	Units	$egin{array}{c} ext{Reporting} \ ext{Limits} \end{array}$
Total Cadmium	riag	<0.000303	mg/L	0.000303
Method Blank (1) QC Batch: 63055 Prep Batch: 53818	DI	Date Analyzed: 2009-08-31 QC Preparation: 2009-08-31	77 0	Analyzed By: RR Prepared By: KV Reporting
Parameter Total Cobalt	Flag	Result <0.000822	$\frac{\rm Units}{\rm mg/L}$	Limits 0.000822
Method Blank (1) QC Batch: 63055 Prep Batch: 53818		Date Analyzed: 2009-08-31 QC Preparation: 2009-08-31		Analyzed By: RR Prepared By: KV
Parameter	Flag	Result	Units	$egin{array}{c} ext{Reporting} \ ext{Limits} \end{array}$
Total Chromium		< 0.000583	m mg/L	0.000583
Method Blank (1) QC Batch: 63055 Prep Batch: 53818		Date Analyzed: 2009-08-31 QC Preparation: 2009-08-31		Analyzed By: RR Prepared By: KV
Parameter	Flag	Result	Units	$\begin{array}{c} {\rm Reporting} \\ {\rm Limits} \end{array}$
Total Connon	rag		UIII IS	0.000842

< 0.000843

mg/L

0.000843

Total Copper

Report Date: September 4, 2009 Work Order: 9082611 Page Number: 26 of 76 HELSTF Chromate Spill Groundwater

	Date Analyzed: 2009-08-31 QC Preparation: 2009-08-31		Analyzed By: RR Prepared By: KV
			Reporting
Flag			Limits 0.000872
	V0.000012	mg/ L	0.000012
	Date Analyzed: 2009-08-31		Analyzed By: RR
	QC Preparation: 2009-08-31		Prepared By: KV
Flaσ	Result	Units	$\begin{array}{c} {\rm Reporting} \\ {\rm Limits} \end{array}$
Tiag	<0.00305		0.000305
	Date Analyzed: 2009-08-31 QC Preparation: 2009-08-31		Analyzed By: RR Prepared By: KV
Elo ∞	Dogult	IInita	Reporting
riag			Limits 0.00119
		<u>o,</u>	
	Date Analyzed: 2009-08-31 QC Preparation: 2009-08-31		Analyzed By: RR Prepared By: KV
Tal	D. 14	TT '	Reporting
Flag			Limits 0.00121
	(0)00222		0100121
	T		
	Date Analyzed: 2009-08-31		Analyzed By: RR
	QC Preparation: 2009-08-31		Prepared By: KV
Flag	QC Preparation: 2009-08-31 Result	$_{ m Units}$	Prepared By: KV Reporting Limits
	Flag	Plag Result	Plag Result Units

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	•	HELSTF Chromate Spill Ground	water	
Method Blank (1)				
QC Batch: 63055 Prep Batch: 53818		Date Analyzed: 2009-08-31 QC Preparation: 2009-08-31		Analyzed By: RR Prepared By: KV
D	T)	D 1	TT *.	Reporting
Parameter Total Lead	Flag	Result < 0.00326	$\frac{ m Units}{ m mg/L}$	Limits 0.00326
Total Bead		V0.00920		0.00020
Method Blank (1)				
QC Batch: 63055		Date Analyzed: 2009-08-31		Analyzed By: RR
Prep Batch: 53818		QC Preparation: 2009-08-31		Prepared By: KV
Parameter	Flag	Result	Units	$egin{array}{c} ext{Reporting} \ ext{Limits} \end{array}$
Total Antimony		< 0.00440	mg/L	0.0044
Method Blank (1) QC Batch: 63055 Prep Batch: 53818 Parameter	Flag	Date Analyzed: 2009-08-31 QC Preparation: 2009-08-31 Result	$_{ m Units}$	Analyzed By: RR Prepared By: KV Reporting Limits
Total Selenium	Flag	<0.00508	$\frac{\rm mg/L}$	0.00508
Method Blank (1) QC Batch: 63055		Date Analyzed: 2009-08-31		Analyzed By: RR
Prep Batch: 53818		QC Preparation: 2009-08-31		Prepared By: KV
Parameter	Flag	Result	Units	$egin{array}{c} ext{Reporting} \ ext{Limits} \end{array}$
Total Thallium	Flag	<0.00488	mg/L	0.00488
Method Blank (1) QC Batch: 63055 Prep Batch: 53818		Date Analyzed: 2009-08-31 QC Preparation: 2009-08-31	J,	Analyzed By: RR Prepared By: KV
D	T)	D 1	TT 11	Reporting
Parameter Total Vanadium	Flag	Result < 0.000426	Units mg/L	Limits 0.000426
TOTAL VALIAUIUIII		<u></u> √0.000420	m mg/L	0.000420

Report Date: September 4, 2009 Work Order: 9082611 Page Number: 28 of 76 **HELSTF** Chromate Spill Groundwater Method Blank (1) QC Batch: 63055Date Analyzed: 2009-08-31 Analyzed By: RR Prep Batch: 53818QC Preparation: 2009-08-31 Prepared By: KVReporting Parameter Flag Result Units Limits Total Zinc < 0.000465 0.000465mg/LMethod Blank (1) QC Batch: 63080 Date Analyzed: 2009-08-31 Analyzed By: AH Prep Batch: 53840 QC Preparation: 2009-08-31 Prepared By: AH Reporting Parameter Units Limits Flag Result Total Cyanide < 0.0110 0.011 mg/LMethod Blank (1) QC Batch: 2009-08-31 Analyzed By: AH 63111 Date Analyzed: Prep Batch: 53864QC Preparation: 2009-08-31 Prepared By: AH Reporting Flag Units Limits Parameter Result Ammonia-N < 0.353mg/L0.353Method Blank (1) QC Batch: 2009-08-31 Analyzed By: AH 63112 Date Analyzed: Prep Batch: Prepared By: 53865QC Preparation: 2009-08-31 AH

Parameter Total Kjeldahl Nitrogen - N

Method Blank (1)

QC Batch:		Date Analyzed:		Analyzed By:	
Prep Batch:	53818	QC Preparation:	2009-08-31	Prepared By:	ΚV

Result

< 2.45

Units

mg/L

Flag

Reporting

Limits

2.45

				Reporting
Parameter	Flag	Result	Units	Limits
Total Calcium		< 0.117	${ m mg/L}$	0.117

Work Order: 9082611 HELSTF Chromate Spill Grou Report Date: September 4, 2009 Page Number: 29 of 76

	H	ELSTF Chromate	Spill Groundy	vater		
Method Blank (1)						
QC Batch: 63131 Prep Batch: 53818		v	009-09-01 009-08-31		Analyzed By: Prepared By:	RR KV
D	T) l	D. Iv		TT '.		orting
Parameter Total Potassium	Flag	Result < 0.172		$\frac{\rm Units}{\rm mg/L}$		$\frac{\text{mits}}{172}$
Total Totalstan		(0.112		1116/12	0.	112
Method Blank (1)						
QC Batch: 63131	Da	te Analyzed: 20	009-09-01		Analyzed By:	RR
Prep Batch: 53818		v	009-08-31		Prepared By:	KV
Parameter	Flag	${ m Resul}$	+	Units		$rac{ ext{orting}}{ ext{mits}}$
Total Magnesium	Flag	<0.160		mg/L		.16
Method Blank (1) QC Batch: 63131 Prep Batch: 53818 Parameter		v	009-09-01 009-08-31	${ m Units}$		RR KV orting mits
Total Sodium	0	< 0.0500		m mg/L		.05
Method Blank (1) QC Batch: 63168 Prep Batch: 53917		v	009-08-28 009-08-28		Analyzed By: Prepared By:	$egin{array}{c} \mathrm{KV} \\ \mathrm{KV} \\ \mathrm{orting} \end{array}$
Parameter	Flag	R	esult	Units		mits
Nitrate and Nitrite as N	<u> </u>	<0.	0350	$\mathrm{mg/L}$	0.	035
Method Blank (1) QC Batch: 63220 Prep Batch: 53950		v	009-09-03 009-09-03		Analyzed By: Prepared By:	RR KV
Parameter	Flag	$\mathrm{R}\epsilon$	esult	Units	_	$rac{ m orting}{ m mits}$
Dissolved Chromium	<u> </u>	<0.000		/T		20502

< 0.000583

0.000583

mg/L

Dissolved Chromium

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Method Blank (1)							
QC Batch: 63228 Prep Batch: 53964		· ·	009-09-01 009-09-01		Analyzed By: Prepared By:		
Parameter	Flag	Result		Units	_	$\frac{1}{1}$	
Hydroxide Alkalinity		<1.00		mg/L as CaCo3		1	
Carbonate Alkalinity		< 1.00		mg/L as $CaCo3$		1	
Bicarbonate Alkalinity		< 4.00		mg/L as $CaCo3$		4	
Total Alkalinity		<4.00		mg/L as CaCo3		4	
Method Blank (1)							
QC Batch: 63232	Т	Oate Analyzed: 20	009-08-27		Analyzed By:	MD	
Prep Batch: 53968			009-08-27		Prepared By:	MD	
					Rep	orting	
Parameter	Flag	Res		Units	Li	$_{ m mits}$	
Total Dissolved Solids		<5	.00	m mg/L		5	
Method Blank (1)							
QC Batch: 63270	Т	Oate Analyzed: 20	009-09-02		Analyzed By:	MD	
Prep Batch: 54005			009-09-01		Prepared By:	MD	
					Rep	orting	
	Flag	Result		Units		$_{ m mits}$	
Oil and Grease		< 6.20		$\mathrm{mg/L}$		3.6	

QC Batch: 63285 Date Analyzed: 2009-09-04 Analyzed By: KV Prep Batch: 54014 QC Preparation: 2009-09-04 Prepared By: KV

				Reporting
Parameter	Flag	Result	Units	Limits
Total Organic Carbon		0.571	$_{ m mg/L}$	0.401

Duplicate (1) Duplicated Sample: 207812

QC Batch: 63079 Date Analyzed: 2009-08-25 Analyzed By: JG Prep Batch: 53838 QC Preparation: 2009-08-25 Prepared By: JG

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-						
	Duplicate	\mathbf{Sample}				RPD
Param	Result	Result	Units	Dilution	RPD	Limit
Ha	7.44	7.44	S.11.	1	0	1.1

Duplicate (1) Duplicated Sample: 207066

QC Batch: 63228 Date Analyzed: 2009-09-01 Analyzed By: JG Prep Batch: 53964 QC Preparation: 2009-09-01 Prepared By: JG

	Duplicate	Sample				RPD
Param	Result	Result	Units	$\operatorname{Dilution}$	RPD	Limit
Hydroxide Alkalinity	<1.00	<1.00	mg/L as CaCo3	1	0	20
Carbonate Alkalinity	< 1.00	< 1.00	mg/L as $CaCo3$	1	0	20
Bicarbonate Alkalinity	178	178	mg/L as $CaCo3$	1	0	20
Total Alkalinity	178	178	mg/L as CaCo3	1	0	20

Duplicate (1) Duplicated Sample: 207812

QC Batch: 63232 Date Analyzed: 2009-08-27 Analyzed By: MD Prep Batch: 53968 QC Preparation: 2009-08-27 Prepared By: MD

	Duplicate	\mathbf{Sample}				RPD
Param	Result	Result	Units	$\operatorname{Dilution}$	RPD	Limit
Total Dissolved Solids	17800	16200	$_{ m mg/L}$	1	9	10

Laboratory Control Spike (LCS-1)

QC Batch: 62920 Date Analyzed: 2009-08-26 Analyzed By: ER
Prep Batch: 53703 QC Preparation: 2009-08-26 Prepared By: ER

	LCS			Spike	Matrix		${ m Rec.}$
Param	Result	Units	$\mathrm{Dil}.$	${f Amount}$	Result	$\mathrm{Rec}.$	Limit
GRO	0.974	${ m mg/L}$	1	1.00	< 0.152	97	75.5 - 118

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	$_{ m LCSD}$			Spike	Matrix		${ m Rec}.$		$_{ m RPD}$
Param	Result	Units	Dil.	${f Amount}$	Result	Rec.	Limit	RPD	Limit
$\overline{\mathrm{GRO}}$	0.978	$\mathrm{mg/L}$	1	1.00	< 0.152	98	75.5 - 118	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCS	LCSD			Spike	LCS	LCSD	$\mathrm{Rec}.$
Surrogate	Result	Result	Units	Dil.	${f Amount}$	Rec.	Rec .	Limit
Trifluorotoluene (TFT)	0.0990	0.0966	$\mathrm{mg/L}$	1	0.100	99	97	78.2 - 121
4-Bromofluorobenzene (4-BFB)	0.100	0.0981	${ m mg/L}$	1	0.100	100	98	82.2 - 118

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Laboratory Control Spike (LCS-1)

QC Batch: 62929 Date Analyzed: 2009-08-26 Analyzed By: DS
Prep Batch: 53708 QC Preparation: 2009-08-26 Prepared By: DS

	LCS			Spike	Matrix		$\mathrm{Rec.}$
Param	Result	Units	Dil.	${f Amount}$	Result	$\mathrm{Rec.}$	Limit
HMX	2.35	$\mu { m g/L}$	1	2.50	< 0.123	94	63.5 - 125
RDX	2.42	$\mu { m g}/{ m L}$	1	2.50	< 0.298	97	74.5 - 124
1,3,5-Trinitrobenzene	2.38	$\mu { m g}/{ m L}$	1	2.50	< 0.339	95	54.1 - 131
1,3-Dinitrobenzene	2.45	$\mu { m g}/{ m L}$	1	2.50	< 0.389	98	72 - 112
Nitrobenzene	2.48	$\mu { m g}/{ m L}$	1	2.50	< 0.379	99	72.5 - 126
Tetryl	2.32	$\mu { m g}/{ m L}$	1	2.50	< 0.413	93	35.9 - 149
TNT	2.52	$\mu { m g}/{ m L}$	1	2.50	< 0.464	101	40.7 - 129
4-Amino-DNT	2.46	$\mu { m g}/{ m L}$	1	2.50	< 0.319	98	80 - 120
2-Amino-DNT	2.59	$\mu { m g}/{ m L}$	1	2.50	< 0.391	104	80 - 120
2,6-DNT	2.12	$\mu { m g}/{ m L}$	1	2.50	< 0.323	85	80 - 120
2,4-DNT	2.50	$\mu { m g}/{ m L}$	1	2.50	< 0.366	100	80 - 120
2-NT	2.46	$\mu { m g/L}$	1	2.50	< 0.379	98	49.8 - 139
4-NT	2.43	$\mu { m g/L}$	1	2.50	< 0.398	97	56.3 - 141
3-NT	2.40	$\mu { m g}/{ m L}$	1	2.50	< 0.346	96	66.2 - 129

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			$_{ m Spike}$	Matrix		$\mathrm{Rec.}$		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	$\mathrm{Rec}.$	Limit	RPD	Limit
HMX	2.56	$\mu \mathrm{g/L}$	1	2.50	< 0.123	102	63.5 - 125	9	20
RDX	2.48	$\mu { m g/L}$	1	2.50	< 0.298	99	74.5 - 124	2	20
1,3,5-Trinitrobenzene	2.48	$\mu { m g/L}$	1	2.50	< 0.339	99	54.1 - 131	4	20
1,3-Dinitrobenzene	2.47	$\mu { m g/L}$	1	2.50	< 0.389	99	72 - 112	1	20
Nitrobenzene	2.53	$\mu { m g/L}$	1	2.50	< 0.379	101	72.5 - 126	2	20
Tetryl	2.45	$\mu { m g/L}$	1	2.50	< 0.413	98	35.9 - 149	5	20
TNT	2.48	$\mu \mathrm{g/L}$	1	2.50	< 0.464	99	40.7 - 129	2	20
4-Amino-DNT	2.48	$\mu { m g/L}$	1	2.50	< 0.319	99	80 - 120	1	20
2-Amino-DNT	2.66	$\mu { m g/L}$	1	2.50	< 0.391	106	80 - 120	3	20
2,6-DNT	2.35	$\mu { m g/L}$	1	2.50	< 0.323	94	80 - 120	10	20
2,4-DNT	2.61	$\mu { m g}/{ m L}$	1	2.50	< 0.366	104	80 - 120	4	20
2-NT	2.58	$\mu \mathrm{g/L}$	1	2.50	< 0.379	103	49.8 - 139	5	20
4-NT	2.50	$\mu \mathrm{g/L}$	1	2.50	< 0.398	100	56.3 - 141	3	20
3-NT	2.38	$\mu { m g}/{ m L}$	1	2.50	< 0.346	95	66.2 - 129	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCS	$_{ m LCSD}$			Spike	$_{ m LCS}$	$_{ m LCSD}$	$\mathrm{Rec}.$
Surrogate	Result	Result	Units	Dil.	${f Amount}$	Rec .	$\mathrm{Rec}.$	Limit
1,2-Dinitrobenzene	2.32	2.52	$\mu \mathrm{g}/\mathrm{L}$	1	2.50	93	101	53 - 134

Laboratory Control Spike (LCS-1)

QC Batch: 62950 Date Analyzed: 2009-08-26 Analyzed By: SS Prep Batch: 53722 QC Preparation: 2009-08-26 Prepared By: SS

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	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	$\overline{ ext{Amount}}$	Result	$\mathrm{Rec}.$	\mathbf{Limit}
Bromide	4.78	mg/L	1	5.00	< 0.192	96	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		$\mathrm{Rec}.$		RPD
Param	Result	Units	Dil.	${f Amount}$	Result	Rec.	Limit	RPD	Limit
Bromide	4.88	$\mathrm{mg/L}$	1	5.00	< 0.192	98	90 - 110	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 62950 Date Analyzed: 2009-08-26 Analyzed By: SS Prep Batch: 53722 QC Preparation: 2009-08-26 Prepared By: SS

	$_{ m LCS}$			Spike	Matrix		$\mathrm{Rec.}$
Param	Result	Units	Dil.	${ m Amount}$	Result	$\mathrm{Rec}.$	Limit
Chloride	23.7	mg/L	1	25.0	< 0.157	95	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		$\mathrm{Rec}.$		RPD
Param	Result	Units	Dil .	${f Amount}$	Result	Rec.	Limit	RPD	Limit
Chloride	23.8	mg/L	1	25.0	< 0.157	95	90 - 110	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 62950 Date Analyzed: 2009-08-26 Analyzed By: SS Prep Batch: 53722 QC Preparation: 2009-08-26 Prepared By: SS

	LCS			Spike	Matrix		${ m Rec.}$
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec .	Limit
Fluoride	4.88	$_{ m mg/L}$	1	5.00	< 0.204	98	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		Rec .		RPD
Param	Result	Units	Dil .	${f Amount}$	Result	Rec.	Limit	RPD	Limit
Fluoride	4.94	mg/L	1	5.00	< 0.204	99	90 - 110	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 62950 Date Analyzed: 2009-08-26 Analyzed By: SS Prep Batch: 53722 QC Preparation: 2009-08-26 Prepared By: SS

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Analyzed By:

Prepared By:

TP

	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	$\overline{ ext{Amount}}$	Result	$\mathrm{Rec}.$	Limit
Sulfate	23.9	mg/L	1	25.0	< 0.153	96	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		Rec .		RPD
Param	Result	Units	Dil.	${f Amount}$	Result	Rec.	Limit	RPD	Limit
Sulfate	24.1	$\mathrm{mg/L}$	1	25.0	< 0.153	96	90 - 110	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

 QC Batch:
 62974
 Date Analyzed:
 2009-08-27

 Prep Batch:
 53720
 QC Preparation:
 2009-08-27

LCS Spike Matrix Rec. Param Result Result Units Dil. Amount Rec. Limit Total Mercury 0.001020.00100 < 0.0000329 102 90.3 - 108 mg/L

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		$\mathrm{Rec.}$		RPD
Param	Result	Units	Dil.	A mount	Result	Rec .	Limit	RPD	Limit
Total Mercury	0.00100	mg/L	1	0.00100	< 0.0000329	100	90.3 - 108	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 62994 Date Analyzed: 2009-08-27 Analyzed By: Prep Batch: 53761 QC Preparation: 2009-08-27 Prepared By:

	$_{ m LCS}$			Spike	Matrix		$\mathrm{Rec}.$
Param	Result	Units	Dil.	${f Amount}$	Result	$\mathrm{Rec.}$	Limit
DRO	28.4	mg/L	1	25.0	< 0.876	114	74.3 - 158

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	$_{ m LCSD}$			Spike	Matrix		Rec .		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec .	Limit	RPD	Limit
DRO	27.4	mg/L	1	25.0	< 0.876	110	74.3 - 158	4	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCS	LCSD			Spike	$_{ m LCS}$	LCSD	$\mathrm{Rec}.$
Surrogate	Result	Result	Units	Dil.	${f Amount}$	$\mathrm{Rec.}$	$\mathrm{Rec}.$	Limit
n-Triacontane	9.24	9.14	${ m mg/L}$	1	10.0	92	91	34.4 - 149

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Laboratory Control Spike (LCS-1)

Date Analyzed: 2009-08-28 QC Batch: 63035Analyzed By: MN Prep Batch: 53805QC Preparation: 2009-08-28 Prepared By: MN

		LCS			Spike	Matrix		Rec.
Param		Result	Units	Dil.	${f Amount}$	Result	Rec.	Limit
Phenol		0.0176	$\mathrm{mg/L}$	1	0.0800	< 0.000509	22	10 - 66.5
2-Chlorophenol		0.0397	m mg/L	1	0.0800	< 0.000537	50	11.2 - 108
1,4-Dichlorobenzene (para)		0.0335	m mg/L	1	0.0800	< 0.000440	42	16 - 101
N-Nitrosodi-n-propylamine		0.0430	m mg/L	1	0.0800	< 0.000732	54	10 - 142
1,2,4-Trichlorobenzene		0.0359	m mg/L	1	0.0800	< 0.000404	45	18 - 118
${ m Naphthalene}$		0.0370	m mg/L	1	0.0800	< 0.000489	46	20.2 - 114
4-Chloro-3-methylphenol		0.0587	m mg/L	1	0.0800	< 0.000522	73	21.5 - 125
${ m Acenapht hylene}$		0.0484	m mg/L	1	0.0800	< 0.000586	60	25.8 - 121
${ m Acenaphthene}$		0.0474	${ m mg/L}$	1	0.0800	< 0.000423	59	33.5 - 122
4-Nitrophenol		0.0208	${ m mg/L}$	1	0.0800	< 0.00185	26	10 - 125
2,4-Dinitrotoluene		0.0546	${ m mg/L}$	1	0.0800	< 0.000911	68	53 - 130
Fluorene		0.0519	${ m mg/L}$	1	0.0800	< 0.000648	65	44.6 - 117
${ m Pentachlorophenol}$		0.0389	${ m mg/L}$	1	0.0800	< 0.000435	49	10 - 139
${ m Anthracene}$		0.0533	${ m mg/L}$	1	0.0800	< 0.000428	67	57.5 - 115
Phenanthrene		0.0536	${ m mg/L}$	1	0.0800	< 0.000548	67	55.5 - 118
Fluoranthene		0.0566	m mg/L	1	0.0800	< 0.000632	71	57 - 122
Pyrene		0.0522	${ m mg/L}$	1	0.0800	< 0.000723	65	58.5 - 130
$\operatorname{Benzo}(\operatorname{a})\operatorname{anthracene}$	1	0.0496	${ m mg/L}$	1	0.0800	< 0.000527	62	63.4 - 109
$\mathbf{Chrysene}$		0.0528	m mg/L	1	0.0800	< 0.000638	66	54.7 - 114
${\bf Benzo(b)fluoranthene}$	2	0.0422	m mg/L	1	0.0800	< 0.000879	53	64.8 - 120
$\operatorname{Benzo}(k)$ fluoranthene		0.0707	m mg/L	1	0.0800	< 0.000845	88	70.3 - 114
$\mathrm{Benzo}(\mathrm{a})\mathrm{pyrene}$		0.0590	m mg/L	1	0.0800	< 0.00167	74	63.7 - 120
Indeno(1,2,3-cd)pyrene		0.0580	m mg/L	1	0.0800	< 0.000862	72	65.4 - 119
${ m Dibenzo(a,h)}$ anthracene		0.0607	mg/L	1	0.0800	< 0.000809	76	68.7 - 117
$\mathrm{Benzo}(\mathrm{g,h,i})$ perylene		0.0608	$\mathrm{mg/L}$	1	0.0800	< 0.000949	76	57.2 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		Rec .		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec .	Limit	RPD	Limit
Phenol	0.0182	mg/L	1	0.0800	< 0.000509	23	10 - 66.5	3	20
2-Chlorophenol	0.0410	$\mathrm{mg/L}$	1	0.0800	< 0.000537	51	11.2 - 108	3	20
1,4-Dichlorobenzene (para)	0.0348	$\mathrm{mg/L}$	1	0.0800	< 0.000440	44	16 - 101	4	20
N-Nitrosodi-n-propylamine	0.0437	mg/L	1	0.0800	< 0.000732	55	10 - 142	2	20
1,2,4-Trichlorobenzene	0.0365	$\mathrm{mg/L}$	1	0.0800	< 0.000404	46	18 - 118	2	20
Naphthalene	0.0372	$\mathrm{mg/L}$	1	0.0800	< 0.000489	46	20.2 - 114	0	20
4-Chloro- 3 -methylphenol	0.0590	$\mathrm{mg/L}$	1	0.0800	< 0.000522	74	21.5 - 125	0	20
${ m Acenapht hylene}$	0.0490	mg/L	1	0.0800	< 0.000586	61	25.8 - 121	1	20
${ m Acenaphthene}$	0.0487	mg/L	1	0.0800	< 0.000423	61	33.5 - 122	3	20
4-Nitrophenol	0.0205	mg/L	1	0.0800	< 0.00185	26	10 - 125	1	20
2,4-Dinitrotoluene	0.0552	mg/L	1	0.0800	< 0.000911	69	53 - 130	1	20

 $continued \dots$

 $^{^1\}mathrm{Spike}$ analyte out of control limits. Results biased low. \bullet $^2\mathrm{Spike}$ analyte out of control limits. Results biased low. \bullet

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$control\ spikes\ continued\ \dots$									
	LCSD			$_{ m Spike}$	Matrix		Rec.		RPD
Param	Result	Units	Dil.	${f Amount}$	Result	$\mathrm{Rec}.$	Limit	RPD	Limit
Fluorene	0.0534	mg/L	1	0.0800	< 0.000648	67	44.6 - 117	3	20
Pentachlorophenol	0.0386	$\mathrm{mg/L}$	1	0.0800	< 0.000435	48	10 - 139	1	20
Anthracene	0.0558	$\mathrm{mg/L}$	1	0.0800	< 0.000428	70	57.5 - 115	5	20
Phenanthrene	0.0556	$\mathrm{mg/L}$	1	0.0800	< 0.000548	70	55.5 - 118	4	20
Fluoranthene	0.0582	$\mathrm{mg/L}$	1	0.0800	< 0.000632	73	57 - 122	3	20
Pyrene	0.0532	$\mathrm{mg/L}$	1	0.0800	< 0.000723	66	58.5 - 130	2	20
Benzo(a) anthracene	0.0501	$\mathrm{mg/L}$	1	0.0800	< 0.000527	63	63.4 - 109	1	20
Chrysene	0.0544	$\mathrm{mg/L}$	1	0.0800	< 0.000638	68	54.7 - 114	3	20
Benzo(b)fluoranthene ³	0.0447	$\mathrm{mg/L}$	1	0.0800	< 0.000879	56	64.8 - 120	6	20
Benzo(k)fluoranthene	0.0738	$\mathrm{mg/L}$	1	0.0800	< 0.000845	92	70.3 - 114	4	20
Benzo(a)pyrene	0.0612	$\mathrm{mg/L}$	1	0.0800	< 0.00167	76	63.7 - 120	4	20
Indeno(1,2,3-cd)pyrene	0.0569	$\mathrm{mg/L}$	1	0.0800	< 0.000862	71	65.4 - 119	2	20
${ m Dibenzo}({ m a,h}) { m anthracene}$	0.0581	$\mathrm{mg/L}$	1	0.0800	< 0.000809	73	68.7 - 117	4	20
$\mathrm{Benzo}(\mathrm{g,h,i})\mathrm{perylene}$	0.0600	$\mathrm{mg/L}$	1	0.0800	< 0.000949	75	57.2 - 125	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCS	LCSD			Spike	LCS	LCSD	Rec.
$\operatorname{Surrogate}$	Result	Result	Units	Dil.	${f Amount}$	Rec .	$\mathrm{Rec}.$	Limit
2-Fluorophenol	0.0240	0.0260	$\mathrm{mg/L}$	1	0.0800	30	32	10 - 53.1
Phenol-d5	0.0165	0.0169	${ m mg/L}$	1	0.0800	21	21	10 - 36.9
${ m Nitrobenzene-d5}$	0.0407	0.0411	${ m mg/L}$	1	0.0800	51	51	23.8 - 108
2-Fluorobiphenyl	0.0394	0.0407	${ m mg/L}$	1	0.0800	49	51	15.9 - 127
2,4,6-Tribromophenol	0.0606	0.0609	${ m mg/L}$	1	0.0800	76	76	10 - 123
Terphenyl-d14	0.0513	0.0525	${ m mg/L}$	1	0.0800	64	66	17.2 - 160

Laboratory Control Spike (LCS-1)

QC Batch: 63055Date Analyzed: 2009-08-31 Analyzed By: RR Prep Batch: 53818 QC Preparation: 2009-08-31 Prepared By: KV

	LCS			Spike	Matrix		$\mathrm{Rec}.$
Param	Result	Units	Dil .	${f Amount}$	Result	Rec .	${f Limit}$
Total Silver	0.123	$\mathrm{mg/L}$	1	0.125	< 0.00111	98	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		$\mathrm{Rec}.$		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit	RPD	Limit
Total Silver	0.124	mg/L	1	0.125	< 0.00111	99	85 - 115	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

Date Analyzed: QC Batch: Analyzed By: RR 630552009-08-31 Prep Batch: 53818QC Preparation: 2009-08-31 Prepared By: KV

³Spike analyte out of control limits. Results biased low. •

HELSTF	Chromate Spin Groundwater		
LCS	Spike	Matrix	Rec.

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	LCS			Spike	Matrix		${ m Rec.}$
Param	Result	Units	Dil.	${f Amount}$	Result	Rec .	Limit
Total Aluminum	0.939	$\mathrm{mg/L}$	1	1.00	< 0.00301	94	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	$_{ m LCSD}$			Spike	Matrix		$\mathrm{Rec}.$		RPD
Param	Result	Units	Dil.	${f Amount}$	Result	Rec.	Limit	RPD	Limit
Total Aluminum	0.942	$\mathrm{mg/L}$	1	1.00	< 0.00301	94	85 - 115	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 63055 Date Analyzed: 2009-08-31 Analyzed By: RR
Prep Batch: 53818 QC Preparation: 2009-08-31 Prepared By: KV

	LCS			Spike	Matrix		$\mathrm{Rec}.$
Param	Result	Units	Dil.	${f Amount}$	Result	Rec .	Limit
Total Arsenic	0.477	$_{ m mg/L}$	1	0.500	< 0.00448	95	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	$_{ m LCSD}$			Spike	Matrix		Rec .		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit	RPD	Limit
Total Arsenic	0.487	$\mathrm{mg/L}$	1	0.500	< 0.00448	97	85 - 115	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 63055 Date Analyzed: 2009-08-31 Analyzed By: RR
Prep Batch: 53818 QC Preparation: 2009-08-31 Prepared By: KV

	LCS			Spike	Matrix		$\mathrm{Rec}.$
Param	Result	Units	Dil.	${f Amount}$	Result	Rec .	Limit
Total Barium	0.998	mg/L	1	1.00	< 0.00105	100	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		$\mathrm{Rec}.$		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit	RPD	Limit
Total Barium	1.00	mg/L	1	1.00	< 0.00105	100	85 - 115	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 63055 Date Analyzed: 2009-08-31 Analyzed By: RR Prep Batch: 53818 QC Preparation: 2009-08-31 Prepared By: KV

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	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	$\overline{\mathrm{Amount}}$	Result	Rec.	Limit
Total Beryllium	0.0240	mg/L	1	0.0250	< 0.000450	96	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		Rec .		RPD
Param	Result	Units	Dil.	Amount	Result	Rec .	Limit	RPD	Limit
Total Beryllium	0.0247	$\mathrm{mg/L}$	1	0.0250	< 0.000450	99	85 - 115	3	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 63055 Date Analyzed: 2009-08-31 Analyzed By: RR
Prep Batch: 53818 QC Preparation: 2009-08-31 Prepared By: KV

	LCS			Spike	Matrix		${ m Rec.}$
Param	Result	Units	Dil.	${f Amount}$	Result	Rec .	Limit
Total Cadmium	0.255	mg/L	1	0.250	< 0.000303	102	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		Rec .		RPD
Param	Result	Units	Dil .	${ m Amount}$	Result	Rec.	Limit	RPD	Limit
Total Cadmium	0.258	mg/L	1	0.250	< 0.000303	103	85 - 115	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 63055 Date Analyzed: 2009-08-31 Analyzed By: RR
Prep Batch: 53818 QC Preparation: 2009-08-31 Prepared By: KV

	LCS			Spike	Matrix		$\mathrm{Rec.}$
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec	Limit
Total Cobalt	0.247	mg/L	1	0.250	< 0.000822	99	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		$\mathrm{Rec}.$		RPD
Param	Result	Units	Dil.	A mount	Result	Rec.	Limit	RPD	Limit
Total Cobalt	0.250	mg/L	1	0.250	< 0.000822	100	85 - 115	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 63055 Date Analyzed: 2009-08-31 Analyzed By: RR Prep Batch: 53818 QC Preparation: 2009-08-31 Prepared By: KV

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	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	$\overline{\mathrm{Amount}}$	Result	$\mathrm{Rec}.$	Limit
Total Chromium	0.0970	mg/L	1	0.100	< 0.000583	97	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		$\mathrm{Rec}.$		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Total Chromium	0.0990	$\mathrm{mg/L}$	1	0.100	< 0.000583	99	85 - 115	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 63055 Date Analyzed: 2009-08-31 Analyzed By: RR
Prep Batch: 53818 QC Preparation: 2009-08-31 Prepared By: KV

	LCS			Spike	Matrix		${ m Rec.}$
Param	Result	Units	Dil.	${f Amount}$	Result	Rec .	Limit
Total Copper	0.123	$_{ m mg/L}$	1	0.125	< 0.000843	98	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		Rec .		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit	RPD	Limit
Total Copper	0.130	mg/L	1	0.125	< 0.000843	104	85 - 115	6	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 63055 Date Analyzed: 2009-08-31 Analyzed By: RR
Prep Batch: 53818 QC Preparation: 2009-08-31 Prepared By: KV

	LCS			Spike	Matrix		$\mathrm{Rec}.$
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit
Total Iron	0.451	$_{ m mg/L}$	1	0.500	< 0.000872	90	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		${ m Rec.}$		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Total Iron	0.450	mg/L	1	0.500	< 0.000872	90	85 - 115	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

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	LCS			Spike	Matrix		${ m Rec.}$
Param	Result	Units	Dil.	${f Amount}$	Result	Rec.	Limit
Total Manganese	0.259	mg/L	1	0.250	<0.000305	104	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		Rec .		RPD
Param	Result	Units	Dil.	A mount	Result	Rec .	Limit	RPD	Limit
Total Manganese	0.259	mg/L	1	0.250	< 0.000305	104	85 - 115	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 63055 Date Analyzed: 2009-08-31 Analyzed By: RR
Prep Batch: 53818 QC Preparation: 2009-08-31 Prepared By: KV

	LCS			Spike	Matrix		${ m Rec.}$
Param	Result	Units	Dil.	${f Amount}$	Result	Rec.	Limit
Total Molybdenum	0.541	$_{ m mg/L}$	1	0.500	< 0.00119	108	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		$\mathrm{Rec}.$		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit	RPD	Limit
Total Molybdenum	0.541	mg/L	1	0.500	< 0.00119	108	85 - 115	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 63055 Date Analyzed: 2009-08-31 Analyzed By: RR
Prep Batch: 53818 QC Preparation: 2009-08-31 Prepared By: KV

	LCS			Spike	Matrix		${ m Rec.}$
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec .	Limit
Total Nickel	0.255	mg/L	1	0.250	< 0.00121	102	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		$\mathrm{Rec.}$		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit	RPD	Limit
Total Nickel	0.257	mg/L	1	0.250	< 0.00121	103	85 - 115	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 63055 Date Analyzed: 2009-08-31 Analyzed By: RR Prep Batch: 53818 QC Preparation: 2009-08-31 Prepared By: KV

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	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Total Phosphorous	0.473	$_{ m mg/L}$	1	0.500	< 0.00289	95	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	$_{ m LCSD}$			Spike	Matrix		$\mathrm{Rec}.$		RPD
Param	Result	Units	Dil.	${f Amount}$	Result	Rec .	Limit	RPD	Limit
Total Phosphorous	0.480	$\mathrm{mg/L}$	1	0.500	< 0.00289	96	85 - 115	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 63055 Date Analyzed: 2009-08-31 Analyzed By: RR
Prep Batch: 53818 QC Preparation: 2009-08-31 Prepared By: KV

	LCS			Spike	Matrix		$\mathrm{Rec}.$
Param	Result	Units	Dil.	${f Amount}$	Result	Rec .	Limit
Total Lead	0.493	$_{ m mg/L}$	1	0.500	< 0.00326	99	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		${ m Rec.}$		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit	RPD	Limit
Total Lead	0.498	mg/L	1	0.500	< 0.00326	100	85 - 115	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 63055 Date Analyzed: 2009-08-31 Analyzed By: RR
Prep Batch: 53818 QC Preparation: 2009-08-31 Prepared By: KV

	LCS			Spike	Matrix		$\mathrm{Rec.}$
Param	Result	Units	Dil.	${f Amount}$	Result	Rec .	Limit
Total Antimony	0.242	$_{ m mg/L}$	1	0.250	< 0.00440	97	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		$\mathrm{Rec.}$		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit	RPD	Limit
Total Antimony	0.251	mg/L	1	0.250	< 0.00440	100	85 - 115	4	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

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	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	$\overline{\mathrm{Amount}}$	Result	$\mathrm{Rec.}$	\mathbf{Limit}
Total Selenium	0.443	$_{ m mg/L}$	1	0.500	< 0.00508	89	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		${ m Rec.}$		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec .	Limit	RPD	Limit
Total Selenium	0.441	mg/L	1	0.500	< 0.00508	88	85 - 115	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 63055 Date Analyzed: 2009-08-31 Analyzed By: RR
Prep Batch: 53818 QC Preparation: 2009-08-31 Prepared By: KV

	LCS			Spike	Matrix		$\mathrm{Rec}.$
Param	Result	Units	Dil.	${f Amount}$	Result	Rec .	Limit
Total Thallium	0.511	$_{ m mg/L}$	1	0.500	< 0.00488	102	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	$_{ m LCSD}$			Spike	Matrix		$\mathrm{Rec}.$		RPD
Param	Result	Units	Dil.	${f Amount}$	Result	Rec .	Limit	RPD	Limit
Total Thallium	0.524	$\mathrm{mg/L}$	1	0.500	< 0.00488	105	85 - 115	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 63055 Date Analyzed: 2009-08-31 Analyzed By: RR
Prep Batch: 53818 QC Preparation: 2009-08-31 Prepared By: KV

	LCS			Spike	Matrix		$\mathrm{Rec}.$
Param	Result	Units	Dil.	${ m Amount}$	Result	$\mathrm{Rec.}$	Limit
Total Vanadium	0.245	mg/L	1	0.250	< 0.000426	98	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		${ m Rec.}$		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit	RPD	Limit
Total Vanadium	0.248	mg/L	1	0.250	< 0.000426	99	85 - 115	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 63055 Date Analyzed: 2009-08-31 Analyzed By: RR Prep Batch: 53818 QC Preparation: 2009-08-31 Prepared By: KV

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	LCS			Spike	Matrix		${ m Rec.}$
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit
Total Zinc	0.218	$_{ m mg/L}$	1	0.250	< 0.000465	87	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit	RPD	Limit
Total Zinc	0.226	mg/L	1	0.250	< 0.000465	90	85 - 115	4	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch:63131Date Analyzed:2009-09-01Analyzed By:RRPrep Batch:53818QC Preparation:2009-08-31Prepared By:KV

	LCS			Spike	Matrix		$\mathrm{Rec}.$
Param	Result	Units	Dil.	${f Amount}$	Result	Rec .	Limit
Total Calcium	51.6	$\mathrm{mg/L}$	1	50.0	< 0.117	103	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			$_{ m Spike}$	Matrix		${ m Rec.}$		RPD
Param	Result	Units	Dil.	${f Amount}$	Result	Rec.	Limit	RPD	Limit
Total Calcium	50.4	mg/L	1	50.0	< 0.117	101	85 - 115	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 63131 Date Analyzed: 2009-09-01 Analyzed By: RR
Prep Batch: 53818 QC Preparation: 2009-08-31 Prepared By: KV

	LCS			Spike	Matrix		$\mathrm{Rec}.$
Param	Result	Units	Dil.	${ m Amount}$	Result	$\mathrm{Rec}.$	Limit
Total Potassium	52.6	mg/L	1	50.0	< 0.172	105	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		$\mathrm{Rec}.$		RPD
Param	Result	Units	Dil.	${f Amount}$	Result	Rec.	Limit	RPD	Limit
Total Potassium	52.1	mg/L	1	50.0	< 0.172	104	85 - 115	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

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	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	$\overline{ ext{Amount}}$	Result	$\mathrm{Rec}.$	Limit
Total Magnesium	51.0	mg/L	1	50.0	< 0.160	102	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		$\mathrm{Rec}.$		RPD
Param	Result	Units	Dil.	${f Amount}$	Result	Rec.	Limit	RPD	Limit
Total Magnesium	48.7	mg/L	1	50.0	< 0.160	97	85 - 115	5	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 63131 Date Analyzed: 2009-09-01 Analyzed By: RR
Prep Batch: 53818 QC Preparation: 2009-08-31 Prepared By: KV

	LCS			Spike	Matrix		$\mathrm{Rec}.$
Param	Result	Units	Dil.	${f Amount}$	Result	Rec.	Limit
Total Sodium	52.7	$\mathrm{mg/L}$	1	50.0	< 0.0500	105	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			$_{ m Spike}$	Matrix		$\mathrm{Rec}.$		RPD
Param	Result	Units	Dil.	${f Amount}$	Result	Rec.	Limit	RPD	Limit
Total Sodium	52.7	mg/L	1	50.0	< 0.0500	105	85 - 115	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 63220 Date Analyzed: 2009-09-03 Analyzed By: RR
Prep Batch: 53950 QC Preparation: 2009-09-03 Prepared By: KV

	LCS			Spike	Matrix		$\mathrm{Rec.}$
Param	Result	Units	Dil.	${ m Amount}$	Result	$\mathrm{Rec.}$	Limit
Dissolved Chromium	0.100	mg/L	1	0.100	< 0.000583	100	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		$\mathrm{Rec}.$		RPD
Param	Result	Units	Dil.	A mount	Result	Rec.	Limit	RPD	Limit
Dissolved Chromium	0.0995	mg/L	1	0.100	< 0.000583	100	85 - 115	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 63270 Date Analyzed: 2009-09-02 Analyzed By: MD Prep Batch: 54005 QC Preparation: 2009-09-01 Prepared By: MD

		LCS			Spike	Matrix		${ m Rec.}$
Param		Result	Units	Dil.	${f Amount}$	Result	Rec .	Limit
Oil and Grease	4	23.9	mg/L	1	40.0	< 3.60	60	78 - 114

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

		LCSD			$_{ m Spike}$	Matrix		${ m Rec.}$		RPD
Param		Result	Units	Dil.	${f Amount}$	Result	Rec.	Limit	RPD	Limit
Oil and Grease	5	21.5	mg/L	1	40.0	< 3.60	54	78 - 114	11	18

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 63285 Date Analyzed: 2009-09-04 Analyzed By: KV Prep Batch: 54014 QC Preparation: 2009-09-04 Prepared By: KV

	LCS			Spike	Matrix		$\mathrm{Rec}.$
Param	Result	Units	Dil.	${f Amount}$	Result	$\mathrm{Rec}.$	Limit
Total Organic Carbon	53.2	mg/L	1	50.0	< 0.401	106	89.5 - 114

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			$_{ m Spike}$	Matrix		$\mathrm{Rec}.$		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec .	Limit	RPD	Limit
Total Organic Carbon	53.4	mg/L	1	50.0	< 0.401	107	89.5 - 114	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 207812

QC Batch: 62920 Date Analyzed: 2009-08-26 Analyzed By: ER
Prep Batch: 53703 QC Preparation: 2009-08-26 Prepared By: ER

	MS			Spike	Matrix		$\mathrm{Rec}.$
Param	Result	Units	Dil.	${f Amount}$	Result	Rec.	Limit
GRO	1.02	mg/L	1	1.00	< 0.152	102	48.4 - 136

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

		MSD			Spike	Matrix		$\mathrm{Rec}.$		RPD
Param		Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit	RPD	Limit
GRO	6	0.672	mg/L	1	1.00	< 0.152	67	48.4 - 136	41	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MS	MSD			Spike	MS	MSD	$\mathrm{Rec}.$
$\mathbf{Surrogate}$	Result	Result	Units	Dil.	${ m Amount}$	$\mathrm{Rec}.$	$\mathrm{Rec}.$	Limit
Trifluorotoluene (TFT) ⁷	0.0934	0.0679	$\mathrm{mg/L}$	1	0.1	93	68	70.3 - 129

 $continued \dots$

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⁴SPECIAL: Sodium Sulfate may have caused low LCS and LCSD recovery. Results may be biased low. •

 $^{^5}$ SPECIAL: Sodium Sulfate may have caused low LCS and LCSD recovery. Results may be biased low. ullet

 $^{^6\}mathrm{MS/MSD}$ RPD out of RPD Limits. Use LCS/LCSD to demonstrate analysis is under control.

⁷ Matrix spike recovery out of control limits. Use LCS/LCSD to demonstrate analysis is under control.

HELSTF Chromate Spill Groundwater

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matrix	snikes	continued		

	MS	MSD			Spike	MS	MSD	$\mathrm{Rec}.$
Surrogate	Result	Result	Units	Dil.	${ m Amount}$	$\mathrm{Rec}.$	Rec.	Limit
4-Bromofluorobenzene (4-BFB) ⁸	0.0934	0.0677	mg/L	1	0.1	93	68	82.5 - 118

Matrix Spike (MS-1) Spiked Sample: 207825

QC Batch: 62950 Date Analyzed: 2009-08-26 Analyzed By: QC Preparation: 2009-08-26Prep Batch: 53722 Prepared By: SS

	MS			Spike	Matrix		${ m Rec.}$
Param	Result	Units	Dil.	${f Amount}$	Result	Rec .	Limit
Bromide	272	m mg/L	50	250	< 9.60	109	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		$\mathrm{Rec}.$		RPD
Param	Result	Units	Dil .	${ m Amount}$	Result	Rec.	Limit	RPD	Limit
Bromide	265	mg/L	50	250	< 9.60	106	90 - 110	3	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 207825

QC Batch: 62950 Date Analyzed: 2009-08-26 Analyzed By: SS Prep Batch: 53722 Prepared By: QC Preparation: 2009-08-26

	MS			Spike	Matrix		$\mathrm{Rec.}$
Param	Result	Units	Dil.	${ m Amount}$	Result	$\mathrm{Rec}.$	Limit
Chloride	1420	mg/L	50	1250	138	102	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		$\mathrm{Rec}.$		RPD
Param	Result	Units	Dil.	${f Amount}$	Result	Rec.	Limit	RPD	Limit
Chloride	1400	${ m mg/L}$	50	1250	138	101	90 - 110	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 207825

QC Batch: 62950 Date Analyzed: 2009-08-26 Analyzed By: Prep Batch: 53722 QC Preparation: 2009-08-26 Prepared By:

		MS			Spike	Matrix		$\mathrm{Rec.}$
Param		Result	Units	Dil.	${f Amount}$	Result	$\mathrm{Rec}.$	Limit
Fluoride	9	290	$_{ m mg/L}$	50	250	<10.2	115	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

⁸ Matrix spike recovery out of control limits. Use LCS/LCSD to demonstrate analysis is under control.

⁹Matrix spike recovery out of control limits due to matrix interference. Use LCS/LCSD to demonstrate analysis is under control.

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SS

SS

	MSD			Spike	Matrix		$\mathrm{Rec}.$		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec .	Limit	RPD	Limit
Fluoride	267	mg/L	50	250	<10.2	106	90 - 110	8	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 207825

QC Batch: 62950 Date Analyzed: 2009-08-26 Analyzed By: Prep Batch: 53722 QC Preparation: 2009-08-26 Prepared By:

MSSpike Matrix Rec. Param Result Units Dil. Amount Result Rec. Limit Sulfate 1470 1250 179 103 90 - 110 mg/L50

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

MSD Spike Matrix Rec. RPD Param Result Units Dil. Amount Result Rec. Limit RPD Limit 1460 179 102 90 - 110 20 Sulfate mg/L50 1250

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (xMS-1) Spiked Sample:

QC Batch: 62974 Date Analyzed: 2009-08-27 Analyzed By: TP
Prep Batch: 53720 QC Preparation: 2009-08-27 Prepared By: TP

MSSpike Matrix Rec. Param Result Units Dil. Amount Result Rec. Limit Total Mercury 0.00101 mg/L0.00100 < 0.0000329 101 80 - 116

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

MSD RPD Spike Matrix Rec. Param Result Units Dil. Amount Result Rec. Limit RPDLimit 0.00101 0.00100 < 0.0000329 101 80 - 116 20 Total Mercury mg/L

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 207813

QC Batch: 62994 Date Analyzed: 2009-08-27 Analyzed By: Prep Batch: 53761 QC Preparation: 2009-08-27 Prepared By:

MSMatrix Spike Rec. Param Result Units Dil. Amount Result Rec. Limit 29.8 - 181 DRO 24.9 25.0100 mg/L< 0.876

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		${ m Rec.}$		RPD
Param	Result	Units	Dil .	${f Amount}$	Result	Rec .	Limit	RPD	Limit
DRO	26.8	mg/L	1	25 A	<0.876	107	20.8 - 181	7	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MS	MSD			Spike	MS	MSD	$\mathrm{Rec}.$
$\mathbf{Surrogate}$	Result	Result	Units	Dil.	${f Amount}$	$\mathrm{Rec.}$	Rec.	Limit
n-Triacontane	9.54	9.70	$_{ m mg/L}$	1	10	95	97	34.4 - 185

Matrix Spike (MS-1) Spiked Sample: 207812

 QC Batch:
 63013
 Date Analyzed:
 2009-08-24

 Prep Batch:
 53774
 QC Preparation:
 2009-08-24

Analyzed By: MD Prepared By: MD

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	MS			Spike	Matrix		$\mathrm{Rec}.$
Param	Result	Units	Dil.	${ m Amount}$	Result	$\mathrm{Rec}.$	Limit
Hexavalent Chromium	1.17	$\mathrm{mg/L}$	1.11	0.556	0.647	94	80.1 - 118

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			$_{ m Spike}$	Matrix		Rec .		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec .	Limit	RPD	Limit
Hexavalent Chromium	1.18	mg/L	1.11	0.556	0.647	96	80.1 - 118	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 207812

QC Batch: 63055 Date Analyzed: 2009-08-31 Analyzed By: RR
Prep Batch: 53818 QC Preparation: 2009-08-31 Prepared By: KV

	MS			Spike	Matrix		$\mathrm{Rec}.$
Param	Result	Units	Dil.	${f Amount}$	Result	Rec .	${f Limit}$
Total Silver	0.128	$\mathrm{mg/L}$	1	0.125	< 0.00111	102	75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			$_{ m Spike}$	Matrix		Rec .		RPD
Param	Result	Units	Dil.	$\mathbf{A}\mathbf{mount}$	Result	Rec.	Limit	RPD	Limit
Total Silver	0.138	mg/L	1	0.125	< 0.00111	110	75 - 125	8	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 207812

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	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil .	${ m Amount}$	Result	Rec .	Limit
Total Aluminum	1.18	mg/L	1	1.00	0.175	100	75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			$_{ m Spike}$	Matrix		$\mathrm{Rec.}$		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec .	Limit	RPD	Limit
Total Aluminum	1.17	$\mathrm{mg/L}$	1	1.00	0.175	100	75 - 125	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 207812

QC Batch: 63055 Date Analyzed: 2009-08-31 Analyzed By: RR
Prep Batch: 53818 QC Preparation: 2009-08-31 Prepared By: KV

	MS			Spike	Matrix		${ m Rec.}$
Param	Result	Units	$\mathrm{Dil}.$	${f Amount}$	Result	Rec .	Limit
Total Arsenic	0.500	$_{ m mg/L}$	1	0.500	< 0.00448	100	75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			$_{ m Spike}$	Matrix		${ m Rec.}$		RPD
Param	Result	Units	Dil.	${f Amount}$	Result	Rec.	Limit	RPD	Limit
Total Arsenic	0.499	mg/L	1	0.500	< 0.00448	100	75 - 125	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 207812

QC Batch: 63055 Date Analyzed: 2009-08-31 Analyzed By: RR
Prep Batch: 53818 QC Preparation: 2009-08-31 Prepared By: KV

	MS			Spike	Matrix		${ m Rec.}$
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec .	Limit
Total Barium	1.02	mg/L	1	1.00	0.012	101	75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		${ m Rec.}$		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit	RPD	Limit
Total Barium	1.02	mg/L	1	1.00	0.012	101	75 - 125	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 207812

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	MS			Spike	Matrix		${ m Rec.}$
Param	Result	Units	Dil.	${f Amount}$	Result	Rec.	Limit
Total Beryllium	0.0240	$_{ m mg/L}$	1	0.0250	< 0.000450	96	75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		$\mathrm{Rec.}$		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit	RPD	Limit
Total Beryllium	0.0230	$\mathrm{mg/L}$	1	0.0250	< 0.000450	92	75 - 125	4	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 207812

QC Batch: 63055 Date Analyzed: 2009-08-31 Analyzed By: RR
Prep Batch: 53818 QC Preparation: 2009-08-31 Prepared By: KV

	MS			Spike	Matrix		$\mathrm{Rec}.$
Param	Result	Units	Dil.	${f Amount}$	Result	$\mathrm{Rec.}$	Limit
Total Cadmium	0.215	mg/L	1	0.250	< 0.000303	86	75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		$\mathrm{Rec}.$		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit	RPD	Limit
Total Cadmium	0.239	mg/L	1	0.250	< 0.000303	96	75 - 125	11	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 207812

QC Batch: 63055 Date Analyzed: 2009-08-31 Analyzed By: RR
Prep Batch: 53818 QC Preparation: 2009-08-31 Prepared By: KV

	MS			Spike	Matrix		$\mathrm{Rec.}$
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec	Limit
Total Cobalt	0.218	mg/L	1	0.250	< 0.000822	87	75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		$\mathrm{Rec}.$		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit	RPD	Limit
Total Cobalt	0.229	mg/L	1	0.250	< 0.000822	92	75 - 125	5	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 207812

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	MS			Spike	Matrix		${ m Rec.}$
Param	Result	Units	Dil.	${ m Amount}$	Result	$\mathrm{Rec}.$	Limit
Total Chromium	0.574	$_{ m mg/L}$	1	0.100	0.47	104	75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			$_{ m Spike}$	Matrix		$\mathrm{Rec}.$		RPD
Param	Result	Units	Dil.	${f Amount}$	Result	Rec .	Limit	RPD	Limit
Total Chromium	0.569	$\mathrm{mg/L}$	1	0.100	0.47	99	75 - 125	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 207812

QC Batch: 63055 Date Analyzed: 2009-08-31 Analyzed By: RR
Prep Batch: 53818 QC Preparation: 2009-08-31 Prepared By: KV

	MS			Spike	Matrix		${ m Rec.}$
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit
Total Copper	0.133	$\mathrm{mg/L}$	1	0.125	< 0.000843	106	75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		${ m Rec.}$		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit	RPD	Limit
Total Copper	0.134	mg/L	1	0.125	< 0.000843	107	75 - 125	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 207812

QC Batch: 63055 Date Analyzed: 2009-08-31 Analyzed By: RR
Prep Batch: 53818 QC Preparation: 2009-08-31 Prepared By: KV

	MS			Spike	Matrix		${ m Rec.}$
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec .	Limit
Total Iron	0.532	mg/L	1	0.500	0.059	95	75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		$\mathrm{Rec}.$		RPD
Param	Result	Units	Dil .	${ m Amount}$	Result	Rec.	Limit	RPD	Limit
Total Iron	0.537	mg/L	1	0.500	0.059	96	75 - 125	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 207812

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	MS			Spike	Matrix		$\mathrm{Rec}.$
Param	Result	Units	Dil .	${ m Amount}$	Result	Rec.	Limit
Total Manganese	0.227	mg/L	1	0.250	< 0.000305	91	75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		$\mathrm{Rec}.$		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit	RPD	Limit
Total Manganese	0.227	$\mathrm{mg/L}$	1	0.250	< 0.000305	91	75 - 125	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 207812

QC Batch: 63055 Date Analyzed: 2009-08-31 Analyzed By: RR
Prep Batch: 53818 QC Preparation: 2009-08-31 Prepared By: KV

	MS			Spike	Matrix		$\mathrm{Rec}.$
Param	Result	Units	Dil.	${ m Amount}$	Result	$\mathrm{Rec}.$	Limit
Total Molybdenum	1.02	$\mathrm{mg/L}$	1	0.500	0.5	104	75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			$_{ m Spike}$	Matrix		${ m Rec.}$		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit	RPD	Limit
Total Molybdenum	1.02	mg/L	1	0.500	0.5	104	75 - 125	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 207812

QC Batch: 63055 Date Analyzed: 2009-08-31 Analyzed By: RR
Prep Batch: 53818 QC Preparation: 2009-08-31 Prepared By: KV

	MS			$_{ m Spike}$	Matrix		$\mathrm{Rec}.$
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit
Total Nickel	0.216	mg/L	1	0.250	< 0.00121	86	75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		${ m Rec.}$		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit	RPD	Limit
Total Nickel	0.227	mg/L	1	0.250	< 0.00121	91	75 - 125	5	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 207812

Param

Total Phosphorous

Work Order: 9082611 HELSTF Chromate Spill Groundwater

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3.40			C :1	3.6		T)	_	
MS			Spike	Matrix		$\mathrm{Rec}.$		
Result	Units	Dil.	${ m Amount}$	Result	Rec .	Limit		

0.031

0.500

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75 - 125

96

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

0.512

	MSD			Spike	Matrix		$\mathrm{Rec.}$		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec .	Limit	RPD	Limit
Total Phosphorous	0.513	$\mathrm{mg/L}$	1	0.500	0.031	96	75 - 125	0	20

mg/L

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 207812

QC Batch: 63055 Date Analyzed: 2009-08-31 Analyzed By: RR
Prep Batch: 53818 QC Preparation: 2009-08-31 Prepared By: KV

	MS			Spike	Matrix		$\mathrm{Rec}.$
Param	Result	Units	Dil.	${f Amount}$	Result	Rec.	Limit
Total Lead	0.513	$\mathrm{mg/L}$	1	0.500	< 0.00326	103	75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			$_{ m Spike}$	Matrix		${ m Rec.}$		RPD
Param	Result	Units	Dil.	${\bf Amount}$	Result	Rec.	Limit	RPD	Limit
Total Lead	0.489	mg/L	1	0.500	< 0.00326	98	75 - 125	5	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 207812

QC Batch: 63055 Date Analyzed: 2009-08-31 Analyzed By: RR
Prep Batch: 53818 QC Preparation: 2009-08-31 Prepared By: KV

	MS			Spike	Matrix		${ m Rec.}$
Param	Result	Units	Dil.	${f Amount}$	Result	$\mathrm{Rec.}$	Limit
Total Antimony	0.243	$_{ m mg/L}$	1	0.250	< 0.00440	97	75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		$\mathrm{Rec}.$		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit	RPD	Limit
Total Antimony	0.248	mg/L	1	0.250	< 0.00440	99	75 - 125	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 207812

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	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	$\overline{ ext{Amount}}$	Result	$\mathrm{Rec}.$	Limit
Total Selenium	0.565	mg/L	1	0.500	0.076	98	75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			$_{ m Spike}$	Matrix		$\mathrm{Rec}.$		RPD
Param	Result	Units	Dil .	${ m Amount}$	Result	Rec.	Limit	RPD	Limit
Total Selenium	0.563	${ m mg/L}$	1	0.500	0.076	97	75 - 125	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 207812

QC Batch: 63055 Date Analyzed: 2009-08-31 Analyzed By: RR
Prep Batch: 53818 QC Preparation: 2009-08-31 Prepared By: KV

	MS			Spike	Matrix		$\mathrm{Rec}.$
Param	Result	Units	Dil.	${f Amount}$	Result	Rec .	Limit
Total Thallium	0.425	$\mathrm{mg/L}$	1	0.500	< 0.00488	85	75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		$\mathrm{Rec}.$		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit	RPD	Limit
Total Thallium	0.429	$\mathrm{mg/L}$	1	0.500	< 0.00488	86	75 - 125	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 207812

QC Batch: 63055 Date Analyzed: 2009-08-31 Analyzed By: RR
Prep Batch: 53818 QC Preparation: 2009-08-31 Prepared By: KV

	MS			Spike	Matrix		${ m Rec.}$
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit
Total Vanadium	0.257	mg/L	1	0.250	0.019	95	75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		$\mathrm{Rec.}$		RPD
Param	Result	Units	Dil .	${ m Amount}$	Result	Rec.	Limit	RPD	Limit
Total Vanadium	0.256	mg/L	1	0.250	0.019	95	75 - 125	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 207812

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	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec .	Limit
Total Zinc	0.239	$\mathrm{mg/L}$	1	0.250	0.005	94	75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			$_{ m Spike}$	Matrix		${ m Rec.}$		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit	RPD	Limit
Total Zinc	0.234	mg/L	1	0.250	0.005	92	75 - 125	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 208427

QC Batch: 63080 Date Analyzed: 2009-08-31 Analyzed By: AH Prep Batch: 53840 QC Preparation: 2009-08-31 Prepared By: AH

MSSpike Matrix Rec. Param Result Units Dil. Amount Result Rec. Limit Total Cyanide 0.129 < 0.0110 108 mg/L0.120 66.3 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		$\mathrm{Rec}.$		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit	RPD	Limit
Total Cyanide	0.135	$\mathrm{mg/L}$	1	0.120	< 0.0110	112	66.3 - 125	4	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 208427

QC Batch: 63111 Date Analyzed: 2009-08-31 Analyzed By: AH
Prep Batch: 53864 QC Preparation: 2009-08-31 Prepared By: AH

MSSpike Matrix Rec. Param Result Units Dil. Amount Result Rec. Limit 5.00 0.392 108 57.2 - 133 Ammonia-N 5.77mg/L

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		$\mathrm{Rec}.$		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit	RPD	Limit
Ammonia-N	5.32	mg/L	1	5.00	0.392	98	57.2 - 133	8	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 207065

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	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit
Total Kjeldahl Nitrogen - N	46.2	$_{ m mg/L}$	1	50.0	3.08	86	61.2 - 118

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		$\mathrm{Rec}.$		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Total Kjeldahl Nitrogen - N	44.8	mg/L	1	50.0	3.08	83	61.2 - 118	3	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 207812

QC Batch: 63131 Date Analyzed: 2009-09-01 Analyzed By: RR
Prep Batch: 53818 QC Preparation: 2009-08-31 Prepared By: KV

	MS			Spike	Matrix		${ m Rec.}$
Param	Result	Units	Dil.	${f Amount}$	Result	Rec .	Limit
Total Calcium	469	mg/L	1	50.0	418	102	75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			$_{ m Spike}$	Matrix		$\mathrm{Rec}.$		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit	RPD	Limit
Total Calcium	467	mg/L	1	50.0	418	98	75 - 125	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 207812

QC Batch: 63131 Date Analyzed: 2009-09-01 Analyzed By: RR
Prep Batch: 53818 QC Preparation: 2009-08-31 Prepared By: KV

	MS			Spike	Matrix		$\mathrm{Rec}.$
Param	Result	Units	Dil.	${ m Amount}$	Result	$\mathrm{Rec}.$	Limit
Total Potassium	192	mg/L	1	50.0	143	98	75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			$_{ m Spike}$	Matrix		$\mathrm{Rec}.$		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit	RPD	Limit
Total Potassium	187	mg/L	1	50.0	143	88	75 - 125	3	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 207812

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	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	$\overline{\mathrm{Amount}}$	Result	Rec.	Limit
Total Magnesium	822	mø/L	1	50.0	776	92	75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			$_{ m Spike}$	Matrix		${ m Rec.}$		RPD
Param	Result	Units	Dil .	${ m Amount}$	Result	Rec.	Limit	RPD	Limit
Total Magnesium	823	mg/L	1	50.0	776	94	75 - 125	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 207812

QC Batch: 63131 Date Analyzed: 2009-09-01 Analyzed By: RR
Prep Batch: 53818 QC Preparation: 2009-08-31 Prepared By: KV

	MS			Spike	Matrix		$\mathrm{Rec}.$
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit
Total Sodium	3520	$\mathrm{mg/L}$	1	50.0	3470	100	75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			$_{ m Spike}$	Matrix		${ m Rec.}$		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit	RPD	Limit
Total Sodium	3520	mg/L	1	50.0	3470	100	75 - 125	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 208086

QC Batch: 63168 Date Analyzed: 2009-08-28 Analyzed By: KV Prep Batch: 53917 QC Preparation: 2009-08-28 Prepared By: KV

		MS			Spike	Matrix		${ m Rec.}$
Param		Result	Units	Dil.	${ m Amount}$	Result	Rec .	Limit
Nitrate and Nitrite as N	10	208	$_{ m mg/L}$	500	0.200	141	33500	80 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

		MSD			Spike	Matrix		$\mathrm{Rec.}$		RPD
Param		Result	Units	Dil.	${ m Amount}$	Result	Rec .	Limit	RPD	Limit
Nitrate and Nitrite as N	11	215	mg/L	500	0.200	141	37000	80 - 120	3	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 207065

¹⁰Matrix spike recovery out of control limits due to matrix interference. Use LCS/LCSD to demonstrate analysis is under control.

¹¹Matrix spike recovery out of control limits due to matrix interference. Use LCS/LCSD to demonstrate analysis is under control.

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	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	$\overline{ m Amount}$	Result	$\mathrm{Rec.}$	\mathbf{Limit}
Dissolved Chromium	0.0927	mg/L	1	0.100	< 0.000583	93	75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		Rec .		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec .	Limit	RPD	Limit
Dissolved Chromium	0.0926	$\mathrm{mg/L}$	1	0.100	< 0.000583	93	75 - 125	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 207553

QC Batch: 63285 Date Analyzed: 2009-09-04 Analyzed By: KV Prep Batch: 54014 QC Preparation: 2009-09-04 Prepared By: KV

MSSpike Matrix Rec. Param Result Limit Result Units Amount Rec. 66.9 - 121 Total Organic Carbon 0.763102 51.7mg/L50.0

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		$\mathrm{Rec}.$		RPD
Param	Result	Units	Dil.	${ m Amount}$	Result	Rec.	Limit	RPD	Limit
Total Organic Carbon	51.6	mg/L	1	50.0	0.763	102	66.9 - 121	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Standard (CCV-1)

QC Batch: 62920 Date Analyzed: 2009-08-26 Analyzed By: ER

			CCVs	CCVs	CCVs	Percent	
			True	Found	$\operatorname{Percent}$	Recovery	Date
Param	Flag	Units	$\operatorname{Conc.}$	Conc .	Recovery	Limits	${ m Analyzed}$
GRO		mg/L	1.00	1.00	100	80 - 120	2009-08-26

Standard (CCV-2)

QC Batch: 62920 Date Analyzed: 2009-08-26 Analyzed By: ER

CCVsCCVsCCVsPercent True Found Percent Recovery Date Param Flag Units Conc. Conc. Recovery Limits Analyzed GRO 1.00 1.00 100 80 - 120 2009-08-26 mg/L

Standard (ICV-1)

QC Batch: 62929 Date Analyzed: 2009-08-26 Analyzed By: DS

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			CCVs	CCVs	CCVs	Percent	
			True	Found	$\operatorname{Percent}$	$\operatorname{Recovery}$	Date
Param	Flag	Units	$\operatorname{Conc.}$	Conc .	Recovery	Limits	${ m Analyzed}$
HMX		$\mu \mathrm{g/L}$	500	496	99	85 - 115	2009-08-26
RDX		$\mu { m g}/{ m L}$	500	479	96	85 - 115	2009-08-26
1,3,5-Trinitrobenzene		$\mu { m g}/{ m L}$	500	491	98	85 - 115	2009-08-26
1,3-Dinitrobenzene		$\mu { m g}/{ m L}$	500	506	101	85 - 115	2009-08-26
Nitrobenzene		$\mu { m g}/{ m L}$	500	505	101	85 - 115	2009-08-26
Tetryl		$\mu { m g}/{ m L}$	500	484	97	85 - 115	2009-08-26
TNT		$\mu { m g}/{ m L}$	500	500	100	85 - 115	2009-08-26
4-Amino-DNT		$\mu \mathrm{g}/\mathrm{L}$	500	527	105	85 - 115	2009-08-26
2-Amino-DNT		$\mu \mathrm{g}/\mathrm{L}$	500	561	112	85 - 115	2009-08-26
2,6-DNT		$\mu \mathrm{g}/\mathrm{L}$	500	471	94	85 - 115	2009-08-26
2,4-DNT		$\mu \mathrm{g}/\mathrm{L}$	500	507	101	85 - 115	2009-08-26
2-NT		$\mu \mathrm{g}/\mathrm{L}$	500	518	104	85 - 115	2009-08-26
4-NT		$\mu \mathrm{g}/\mathrm{L}$	500	446	89	85 - 115	2009-08-26
3-NT		$\mu \mathrm{g}/\mathrm{L}$	500	438	88	85 - 115	2009-08-26
					Spike	Percent	Recovery

					${ m Spike}$	$\operatorname{Percent}$	$\operatorname{Recovery}$
$\mathbf{Surrogate}$	Flag	Result	Units	Dilution	${f Amount}$	Recovery	Limit
1,2-Dinitrobenzene		488	$\mu { m g/L}$	1	500	98	85 - 115

Standard (CCV-1)

QC Batch: 62929 Date Analyzed: 2009-08-26 Analyzed By: DS

			CCVs	CCVs	CCVs	$\operatorname{Percent}$	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	$\operatorname{Conc.}$	Conc .	Recovery	Limits	Analyzed
HMX		$\mu \mathrm{g/L}$	500	498	100	85 - 115	2009-08-26
RDX		$\mu { m g/L}$	500	485	97	85 - 115	2009-08-26
1,3,5-Trinitrobenzene		$\mu { m g}/{ m L}$	500	501	100	85 - 115	2009-08-26
1,3-Dinitrobenzene		$\mu { m g}/{ m L}$	500	488	98	85 - 115	2009-08-26
Nitrobenzene		$\mu { m g}/{ m L}$	500	522	104	85 - 115	2009-08-26
Tetryl		$\mu { m g}/{ m L}$	500	492	98	85 - 115	2009-08-26
TNT		$\mu { m g}/{ m L}$	500	484	97	85 - 115	2009-08-26
4-Amino-DNT		$\mu { m g/L}$	500	496	99	85 - 115	2009-08-26
2-Amino-DNT		$\mu { m g}/{ m L}$	500	552	110	85 - 115	2009-08-26
2,6-DNT		$\mu { m g}/{ m L}$	500	453	91	85 - 115	2009-08-26
2,4-DNT		$\mu { m g}/{ m L}$	500	522	104	85 - 115	2009-08-26
2-NT		$\mu { m g}/{ m L}$	500	500	100	85 - 115	2009-08-26
4-NT		$\mu { m g}/{ m L}$	500	455	91	85 - 115	2009-08-26
3-NT		$\mu { m g}/{ m L}$	500	454	91	85 - 115	2009-08-26

					Spike	$\operatorname{Percent}$	Recovery
$\mathbf{Surrogate}$	Flag	Result	Units	Dilution	${f Amount}$	Recovery	Limit
1,2-Dinitrobenzene		474	$\mu \mathrm{g/L}$	1	500	95	85 - 115

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				1			
Standard (CCV-1)						
QC Batch:	62950		Date An	alyzed: 2009-	08-26	Ana	lyzed By: SS
Param	Flag	${ m Units}$	CCVs True Conc.	${ m CCVs} \ { m Found} \ { m Conc.}$	CCVs Percent Recovery	Percent Recovery Limits	$egin{array}{c} { m Date} \ { m Analyzed} \end{array}$
Bromide		$\mathrm{mg/L}$	5.00	4.80	96	90 - 110	2009-08-26
Standard (0	CCV-1)						
QC Batch:	62950		Date An	alyzed: 2009-6	08-26	Ana	lyzed By: SS
Param	Flag	${ m Units}$	${ m CCVs} \ { m True} \ { m Conc.}$	${ m CCVs} \ { m Found} \ { m Conc.}$	CCVs Percent Recovery	Percent Recovery Limits	$egin{aligned} ext{Date} \ ext{Analyzed} \end{aligned}$
Chloride		m mg/L	25.0	23.6	94	90 - 110	2009-08-26
Standard (C	CCV-1) 62950		Date An	alyzed: 2009-	08-26	Ana	lyzed By: SS
Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	$\begin{array}{c} \text{CCVs} \\ \text{Percent} \\ \text{Recovery} \end{array}$	Percent Recovery Limits	$egin{aligned} ext{Date} \ ext{Analyzed} \end{aligned}$
Fluoride		$\mathrm{mg/L}$	5.00	4.71	94	90 - 110	2009-08-26
Standard (•						
QC Batch:	62950		Date An	alyzed: 2009-	08-26	Ana	lyzed By: SS
Param	Flag	$_{ m Units}$	CCVs True Conc.	$\begin{array}{c} { m CCVs} \\ { m Found} \\ { m Conc.} \end{array}$	CCVs Percent Recovery	Percent Recovery Limits	$\begin{array}{c} \text{Date} \\ \text{Analyzed} \end{array}$
Sulfate		$_{ m mg/L}$	25.0	23.9	96	90 - 110	2009-08-26
Standard (C	CCV-2) 62950		Date An	alyzed: 2009-	08-26	Ana	lyzed By: SS
			${ m CCVs} \ { m True}$	${ m CCVs} \ { m Found}$	$rac{ ext{CCVs}}{ ext{Percent}}$	Percent Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	${\bf Analyzed}$
Bromide		$\mathrm{mg/L}$	5.00	4.98	100	90 - 110	2009-08-26

Standard (CCV-2)

Date Analyzed: 2009-08-26 QC Batch: 62950 Analyzed By: SS

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	$egin{array}{c} { m Date} \ { m Analyzed} \end{array}$
Chloride		$\mathrm{mg/L}$	25.0	23.7	95	90 - 110	2009-08-26
Standard	(CCV-2)						
QC Batch:	62950		Date Anal	yzed: 2009-08	3-26	Ana	lyzed By: SS
Param	Flag	Units	CCVs True Conc.	$\begin{array}{c} {\rm CCVs} \\ {\rm Found} \\ {\rm Conc.} \end{array}$	$egin{array}{c} \mathrm{CCVs} \\ \mathrm{Percent} \\ \mathrm{Recovery} \end{array}$	Percent Recovery Limits	$egin{array}{c} { m Date} \ { m Analyzed} \end{array}$
	1148	mg/L	5.00	5.33	107	90 - 110	2009-08-26
Fluoride Standard	(CCV-2)	3/					
	,	OI	Date Anal	yzed: 2009-08	3-26	$_{ m Ana}$	lyzed By: SS
Standard	,	- Gi	Date Anal CCVs True	yzed: 2009-08 CCVs Found	3-26 CCVs Percent	Ana Percent Recovery	lyzed By: SS Date
Standard QC Batch: Param	,	Units	CCVs True Conc.	CCVs Found Conc.	$egin{array}{c} ext{CCVs} \ ext{Percent} \ ext{Recovery} \end{array}$	Percent Recovery Limits	$egin{array}{c} { m Date} \\ { m Analyzed} \end{array}$
Standard QC Batch:	62950		CCVs True	CCVs Found	${ m CCVs} \ { m Percent}$	Percent Recovery	Date
Standard QC Batch: Param	62950 Flag	Units	CCVs True Conc.	CCVs Found Conc.	$egin{array}{c} ext{CCVs} \ ext{Percent} \ ext{Recovery} \end{array}$	Percent Recovery Limits	Date Analyzed
Standard QC Batch: Param Sulfate	62950 Flag (ICV-1)	Units	CCVs True Conc.	CCVs Found Conc. 23.8	CCVs Percent Recovery 95	Percent Recovery Limits 90 - 110	Date Analyzed
Standard QC Batch: Param Sulfate Standard	62950 Flag (ICV-1) 62974	Units	CCVs True Conc. 25.0	CCVs Found Conc. 23.8	CCVs Percent Recovery 95	Percent Recovery Limits 90 - 110	Date Analyzed 2009-08-26
Standard QC Batch: Param Sulfate Standard	62950 Flag (ICV-1) 62974 Flag	Units	CCVs True Conc. 25.0 Date Anal	CCVs Found Conc. 23.8 yzed: 2009-08 CCVs	CCVs Percent Recovery 95 -27 CCVs	Percent Recovery Limits 90 - 110 Anal Percent	Date Analyzed 2009-08-26

Standard	(CCIII)
Standard	(UUV-1)

 $QC\ Batch:\ 62974$ Date Analyzed: 2009-08-27 Analyzed By: TP

			CCVs	CCVs	CCVs	Percent	
			True	Found	$\operatorname{Percent}$	Recovery	Date
Param	Flag	Units	$\operatorname{Conc.}$	$\operatorname{Conc.}$	Recovery	Limits	${ m Analyzed}$
Total Mercury		mg/L	0.00100	0.00102	102	90 - 110	2009-08-27

Standard (CCV-1)

QC Batch: 62994 Date Analyzed: 2009-08-27 Analyzed By:

			CCVs	CCVs	CCVs	Percent	
			True	Found	$\operatorname{Percent}$	Recovery	Date
Param	Flag	Units	$\operatorname{Conc.}$	$\operatorname{Conc.}$	Recovery	Limits	${\bf Analyzed}$
DRO		$_{ m mg/L}$	250	276	110	80 - 120	2009-08-27

Standard (CCV-2)

QC Batch: 62994 Date Analyzed: 2009-08-27 Analyzed By:

			CCVs	CCVs	CCVs	Percent	
			True	Found	$\operatorname{Percent}$	Recovery	Date
Param	Flag	Units	$\operatorname{Conc.}$	$\operatorname{Conc.}$	Recovery	Limits	${ m Analyzed}$
DRO		$_{ m mg/L}$	250	295	118	80 - 120	2009-08-27

Standard (CCV-1)

QC Batch: 63013 Date Analyzed: 2009-08-24 Analyzed By: MD

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	$_{ m Units}$	Conc .	Conc .	Recovery	Limits	${ m Analyzed}$
Hexavalent Chromium		mg/L	0.500	0.493	99	90 - 110	2009-08-24

Standard (CCV-2)

QC Batch: 63013 Date Analyzed: 2009-08-24 Analyzed By: MD

			CCVs	CCVs	CCVs	Percent	
			True	Found	$\operatorname{Percent}$	$\operatorname{Recovery}$	Date
Param	Flag	Units	Conc .	Conc .	Recovery	Limits	${\bf Analyzed}$
Hexavalent Chromium		mg/L	0.500	0.490	98	90 - 110	2009-08-24

Standard (CCV-1)

QC Batch: 63035 Date Analyzed: 2009-08-28 Analyzed By: MN

			CCVs	CCVs	CCVs	$\operatorname{Percent}$	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	$\operatorname{Conc.}$	Conc .	Recovery	Limits	${ m Analyzed}$
Phenol		m mg/L	60.0	59.0	98	80 - 120	2009-08-28
1,4-Dichlorobenzene (para)		${ m mg/L}$	60.0	59.6	99	80 - 120	2009-08-28
2-Nitrophenol		${ m mg/L}$	60.0	64.9	108	80 - 120	2009-08-28
2,4-Dichlorophenol		${ m mg/L}$	60.0	68.8	115	80 - 120	2009-08-28
${ m Hexachlorobutadiene}$		m mg/L	60.0	59.0	98	80 - 120	2009-08-28
4-Chloro-3-methylphenol	12	m mg/L	60.0	76.1	127	80 - 120	2009-08-28
2,4,6-Trichlorophenol		m mg/L	60.0	65.0	108	80 - 120	2009-08-28
${f Acenaphthene}$		m mg/L	60.0	61.1	102	80 - 120	2009-08-28

 $continued \dots$

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 $^{^{12}\}mathrm{Control}$ analyte out of CCV control limits. Results biased high for analyte. \bullet

HELSTF Chromate Spill Groundwater

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			CCVs	CCVs	CCVs	$\operatorname{Percent}$	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	$\operatorname{Conc.}$	Conc .	Recovery	Limits	${ m Analyzed}$
Diphenylamine		m mg/L	60.0	59.9	100	80 - 120	2009-08-28
Pentachlorophenol		${ m mg/L}$	60.0	56.0	93	80 - 120	2009-08-28
Fluoranthene		${ m mg/L}$	60.0	58.4	97	80 - 120	2009-08-28
Di-n-octylphthalate		m mg/L	60.0	67.2	112	80 - 120	2009-08-28
Benzo(a) pyrene		$\mathrm{mg/L}$	60.0	63.4	106	80 - 120	2009-08-28

					Spike	$\operatorname{Percent}$	$\operatorname{Recovery}$
Surrogate	Flag	Result	${ m Units}$	Dilution	${f Amount}$	Recovery	Limit
2-Fluorophenol		64.0	$_{ m mg/L}$	1	60.0	107	80 - 120
${ m Phenol-d5}$		57.6	${ m mg/L}$	1	60.0	96	80 - 120
${ m Nitrobenzene-d5}$		60.3	${ m mg/L}$	1	60.0	100	80 - 120
2-Fluorobiphenyl		60.8	${ m mg/L}$	1	60.0	101	80 - 120
2,4,6-Tribromophenol		71.4	${ m mg/L}$	1	60.0	119	80 - 120
Terphenyl-d14		59.7	$\mathrm{mg/L}$	1	60.0	100	80 - 120

Standard (ICV-1)

QC Batch: 63055

Date Analyzed: 2009-08-31

Analyzed By: RR

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	$\operatorname{Conc.}$	Conc .	Recovery	Limits	${ m Analyzed}$
Total Silver		$_{ m mg/L}$	0.250	0.247	99	90 - 110	2009-08-31

Standard (ICV-1)

QC Batch: 63055

Date Analyzed: 2009-08-31

Analyzed By: RR

			CCVs	CCVs	CCVs	$\operatorname{Percent}$	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc .	Conc .	Recovery	Limits	Analyzed
Total Aluminum		$\mathrm{mg/L}$	1.00	0.971	97	90 - 110	2009-08-31

Standard (ICV-1)

QC Batch: 63055

Date Analyzed: 2009-08-31

Analyzed By: RR

Analyzed By: RR

			CCVs	CCVs	CCVs	$\operatorname{Percent}$	
			True	Found	$\operatorname{Percent}$	Recovery	Date
Param	Flag	Units	Conc .	$\operatorname{Conc.}$	Recovery	Limits	${ m Analyzed}$
Total Arsenic		$\mathrm{mg/L}$	2.00	1.97	98	90 - 110	2009-08-31

Standard (ICV-1)

QC Batch: 63055

Date Analyzed: 2009-08-31

HELSTF Chromate Spill Groundwater

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ELCTE Chromoto Crill Croundweter	

			$\stackrel{ ext{CCVs}}{ ext{-}}$	CCVs	$_{ m CCVs}$	Percent	_
			True	Found	$\operatorname{Percent}$	$\operatorname{Recovery}$	Date
Param	Flag	Units	Conc .	$\operatorname{Conc.}$	Recovery	Limits	${ m Analyzed}$
Total Barium		$\mathrm{mg/L}$	1.00	0.991	99	90 - 110	2009-08-31

Standard (ICV-1)

QC Batch: 63055 Date Analyzed: 2009-08-31 Analyzed By: RR

			CCVs	CCVs	CCVs	$\operatorname{Percent}$	
			True	Found	$\operatorname{Percent}$	Recovery	Date
Param	Flag	Units	Conc .	$\operatorname{Conc.}$	Recovery	Limits	Analyzed
Total Beryllium		$_{ m mg/L}$	1.00	0.985	98	90 - 110	2009-08-31

Standard (ICV-1)

QC Batch: 63055 Analyzed By: RR Date Analyzed: 2009-08-31

			CCVs	CCVs	CCVs	$\operatorname{Percent}$	
			True	Found	$\operatorname{Percent}$	Recovery	Date
Param	Flag	Units	Conc .	Conc .	Recovery	Limits	Analyzed
Total Cadmium		$_{ m mg/L}$	1.00	1.01	101	90 - 110	2009-08-31

Standard (ICV-1)

QC Batch: 63055 Date Analyzed: 2009-08-31 Analyzed By: RR

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	$\operatorname{Conc.}$	Conc .	Recovery	Limits	${ m Analyzed}$
Total Cobalt		$_{ m mg/L}$	1.00	0.966	97	90 - 110	2009-08-31

Standard (ICV-1)

QC Batch: 63055 Date Analyzed: 2009-08-31 Analyzed By: RR

			CCVs	CCVs	CCVs	Percent	
			True	Found	$\operatorname{Percent}$	Recovery	Date
Param	Flag	Units	Conc .	$\operatorname{Conc.}$	Recovery	Limits	${ m Analyzed}$
Total Chromium		mg/L	1.00	1.01	101	90 - 110	2009-08-31

Standard (ICV-1)

QC Batch: 63055 Date Analyzed: 2009-08-31 Analyzed By: RR

 ${\it HELSTF\ Chromate\ Spill\ Groundwater}$

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FISTE Chromata Spill Croundwater	

			CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Total Copper		$\mathrm{mg/L}$	1.00	0.998	100	90 - 110	2009-08-31

Standard (ICV-1)

QC Batch: 63055

Date Analyzed: 2009-08-31

Analyzed By: RR

			CCVs	CCVs	CCVs	$\operatorname{Percent}$	
			True	Found	$\operatorname{Percent}$	Recovery	Date
Param	Flag	Units	Conc .	Conc .	Recovery	Limits	${ m Analyzed}$
Total Iron		$\mathrm{mg/L}$	1.00	1.01	101	90 - 110	2009-08-31

Standard (ICV-1)

QC Batch: 63055

Date Analyzed: 2009-08-31

Analyzed By: RR

			CCVs	CCVs	CCVs	Percent	
			True	Found	$\operatorname{Percent}$	Recovery	Date
Param	Flag	Units	Conc .	Conc .	Recovery	Limits	${ m Analyzed}$
Total Manganese		$\mathrm{mg/L}$	1.00	0.993	99	90 - 110	2009-08-31

Standard (ICV-1)

QC Batch: 63055

Date Analyzed: 2009-08-31

Analyzed By: RR

			CCVs	CCVs	CCVs	Percent	
			True	Found	$\operatorname{Percent}$	Recovery	Date
Param	Flag	Units	Conc .	Conc .	Recovery	Limits	${ m Analyzed}$
Total Molybdenum		mg/L	1.00	0.970	97	90 - 110	2009-08-31

Standard (ICV-1)

QC Batch: 63055

Date Analyzed: 2009-08-31

Analyzed By: RR

Analyzed By: RR

			CCVs	CCVs	CCVs	Percent	
			True	Found	$\operatorname{Percent}$	Recovery	Date
Param	Flag	Units	Conc .	$\operatorname{Conc.}$	Recovery	Limits	${ m Analyzed}$
Total Nickel		mg/L	1.00	0.973	97	90 - 110	2009-08-31

Standard (ICV-1)

QC Batch: 63055

Date Analyzed: 2009-08-31

Report Date: September 4, 2009				ck Order: 908 promate Spill	Page Number: 66 of 76		
Param Total Phosphorous	Flag	Units mg/L	CCVs True Conc. 5.00	CCVs Found Conc. 4.87	CCVs Percent Recovery	Percent Recovery Limits 90 - 110	Date Analyzed 2009-08-31
Standard (ICV-1)							
QC Batch: 63055			Date Analyze	ed: 2009-08-	31	Analy	zed By: RR
Param Fla	ιo.	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	$egin{array}{c} { m Date} \ { m Analyzed} \end{array}$
Total Lead	8	mg/L	2.00	1.99	100	90 - 110	2009-08-31
Standard (ICV-1) QC Batch: 63055			Date Analyze	ed: 2009-08-	31	Analy	vzed By: RR
Param	Flag	Units	$egin{array}{c} \mathrm{CCVs} \\ \mathrm{True} \\ \mathrm{Conc.} \end{array}$	CCVs Found Conc.	$\begin{array}{c} {\rm CCVs} \\ {\rm Percent} \\ {\rm Recovery} \end{array}$	Percent Recovery Limits	$egin{aligned} ext{Date} \ ext{Analyzed} \end{aligned}$
Total Antimony	8	$\frac{\rm gmes}{\rm mg/L}$	2.00	1.99	100	90 - 110	2009-08-31

Standard (ICV-1)

QC Batch: 63055	Date Analyzed: 2009-08-31	Analyzed By: RR
QC Datch. 00000	Date Anaryzed, 2005-00-91	Anaryzeu Dv. 1616

			CCVs	CCVs	CCVs	$\operatorname{Percent}$	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc .	Conc .	Recovery	Limits	${ m Analyzed}$
Total Selenium		$\mathrm{mg/L}$	1.00	0.997	100	90 - 110	2009-08-31

Standard (ICV-1)

QC Batch: 63055Date Analyzed: 2009-08-31 Analyzed By: RR

			CCVs	CCVs	CCVs	Percent	
			True	Found	$\operatorname{Percent}$	Recovery	Date
Param	Flag	Units	$\operatorname{Conc.}$	Conc .	Recovery	Limits	Analyzed
Total Thallium		$\mathrm{mg/L}$	5.00	4.96	99	90 - 110	2009-08-31

Standard (ICV-1)

QC Batch: 63055 Date Analyzed: 2009-08-31 Analyzed By: RR

Work Order: 9082611
HELSTF Chromate Spill Groundwater

1.02

		IIBESII (II	.ioinace ppin	GIOGIIG Water		
		CCVs	CCVs	CCVs	Percent	
		True	Found	Percent	Recovery	Date
Flag	Units	$\operatorname{Conc.}$	Conc .	Recovery	Limits	Analyzed

102

Standard (ICV-1)

Total Vanadium

Param

QC Batch: 63055

Date Analyzed: 2009-08-31

1.00

mg/L

Analyzed By: RR

90 - 110

2009-08-31

Page Number: 67 of 76

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	$\operatorname{Conc.}$	$\operatorname{Conc.}$	Recovery	Limits	${ m Analyzed}$
Total Zinc		mg/L	1.00	0.995	100	90 - 110	2009-08-31

Standard (CCV-1)

QC Batch: 63055

Date Analyzed: 2009-08-31

Analyzed By: RR

			CCVs	CCVs	CCVs	$\operatorname{Percent}$	
			True	Found	$\operatorname{Percent}$	$\operatorname{Recovery}$	Date
Param	Flag	Units	Conc .	Conc .	Recovery	Limits	Analyzed
Total Silver		$\mathrm{mg/L}$	0.125	0.130	104	90 - 110	2009-08-31

Standard (CCV-1)

QC Batch: 63055

Date Analyzed: 2009-08-31

Analyzed By: RR

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc .	$\operatorname{Conc.}$	Recovery	Limits	Analyzed
Total Aluminum		$_{ m mg/L}$	1.00	1.01	101	90 - 110	2009-08-31

Standard (CCV-1)

QC Batch: 63055

Date Analyzed: 2009-08-31

Analyzed By: RR

			CCVs	CCVs	CCVs	Percent	
			True	Found	$\operatorname{Percent}$	Recovery	Date
Param	Flag	Units	Conc .	$\operatorname{Conc.}$	Recovery	Limits	${ m Analyzed}$
Total Arsenic		m mg/L	1.00	1.03	103	90 - 110	2009-08-31

Standard (CCV-1)

QC Batch: 63055

Date Analyzed: 2009-08-31

Analyzed By: RR

Work Order: 9082611 HELSTF Chromate Spill Groundwater

			CCVs	CCVs	CCVs	$\operatorname{Percent}$	
			True	Found	$\operatorname{Percent}$	$\operatorname{Recovery}$	Date
Param	Flag	Units	Conc .	Conc .	Recovery	Limits	${ m Analyzed}$
Total Barium		$\mathrm{mg/L}$	1.00	1.02	102	90 - 110	2009-08-31

Standard (CCV-1)

QC Batch: 63055

Date Analyzed: 2009-08-31

Analyzed By: RR

Page Number: 68 of 76

			CCVs	CCVs	CCVs	$\operatorname{Percent}$	
			True	Found	$\operatorname{Percent}$	Recovery	Date
Param	Flag	Units	Conc .	$\operatorname{Conc.}$	Recovery	Limits	Analyzed
Total Beryllium		$\mathrm{mg/L}$	1.00	1.02	102	90 - 110	2009-08-31

Standard (CCV-1)

QC Batch: 63055

Date Analyzed: 2009-08-31

Analyzed By: RR

			CCVs	CCVs	CCVs	Percent	
			True	Found	$\operatorname{Percent}$	Recovery	Date
Param	Flag	Units	Conc .	$\operatorname{Conc.}$	Recovery	Limits	${ m Analyzed}$
Total Cadmium		$\mathrm{mg/L}$	1.00	1.03	103	90 - 110	2009-08-31

Standard (CCV-1)

QC Batch: 63055

Date Analyzed: 2009-08-31

Analyzed By: RR

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	$\operatorname{Conc.}$	Conc .	Recovery	Limits	${ m Analyzed}$
Total Cobalt		$_{ m mg/L}$	1.00	1.03	103	90 - 110	2009-08-31

Standard (CCV-1)

QC Batch: 63055

Date Analyzed: 2009-08-31

Analyzed By: RR

Analyzed By: RR

			CCVs	CCVs	CCVs	$\operatorname{Percent}$	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc .	Conc .	Recovery	Limits	Analyzed
Total Chromium		mg/L	1.00	1.04	104	90 - 110	2009-08-31

Standard (CCV-1)

QC Batch: 63055

Date Analyzed: 2009-08-31

Work Order: 9082611	Page Number: 69 of 76
HELSTF Chromate Spill Groundwater	

			${ m CCVs} \ { m True}$	CCVs Found	${ m CCVs} \ { m Percent}$	Percent Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	$\begin{array}{c} \text{Analyzed} \end{array}$
Total Copper		$_{ m mg/L}$	1.00	1.03	103	90 - 110	2009-08-31

Standard (CCV-1)

QC Batch: 63055

Date Analyzed: 2009-08-31

Analyzed By: RR

			CCVs	CCVs	CCVs	$\operatorname{Percent}$	
			True	Found	$\operatorname{Percent}$	Recovery	Date
Param	Flag	Units	$\operatorname{Conc.}$	Conc .	Recovery	Limits	${ m Analyzed}$
Total Iron		$\mathrm{mg/L}$	1.00	1.05	105	90 - 110	2009-08-31

Standard (CCV-1)

QC Batch: 63055

Date Analyzed: 2009-08-31

Analyzed By: RR

			CCVs	CCVs	CCVs	$\operatorname{Percent}$	
			True	Found	$\operatorname{Percent}$	Recovery	Date
Param	Flag	Units	Conc .	Conc .	Recovery	Limits	Analyzed
Total Manganese		$_{ m mg/L}$	1.00	1.03	103	90 - 110	2009-08-31

Standard (CCV-1)

QC Batch: 63055

Date Analyzed: 2009-08-31

Analyzed By: RR

			CCVs	CCVs	CCVs	Percent	
			True	Found	$\operatorname{Percent}$	Recovery	Date
Param	Flag	Units	Conc .	Conc .	Recovery	Limits	${ m Analyzed}$
Total Molybdenum		$_{ m mg/L}$	1.00	1.01	101	90 - 110	2009-08-31

Standard (CCV-1)

QC Batch: 63055

Date Analyzed: 2009-08-31

Analyzed By: RR

			CCVs	CCVs	CCVs	Percent	
			True	Found	$\operatorname{Percent}$	Recovery	Date
Param	Flag	Units	Conc .	Conc .	Recovery	Limits	${ m Analyzed}$
Total Nickel		mg/L	1.00	1.01	101	90 - 110	2009-08-31

Standard (CCV-1)

QC Batch: 63055

Date Analyzed: 2009-08-31

Analyzed By: RR

Work Order: 9082611

Page Number: 70 of 76 HELSTF Chromate Spill Groundwater

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	$\operatorname{Recovery}$	Date
Param	Flag	Units	Conc .	$\operatorname{Conc.}$	Recovery	Limits	${ m Analyzed}$
Total Phosphorous		mg/L	5.00	5.13	103	90 - 110	2009-08-31

Standard (CCV-1)

QC Batch: 63055

Date Analyzed: 2009-08-31

Analyzed By: RR

			CCVs	CCVs	CCVs	$\operatorname{Percent}$	
			True	Found	$\operatorname{Percent}$	Recovery	Date
Param	Flag	Units	$\operatorname{Conc.}$	$\operatorname{Conc.}$	Recovery	Limits	${ m Analyzed}$
Total Lead		$\mathrm{mg/L}$	1.00	1.04	104	90 - 110	2009-08-31

Standard (CCV-1)

QC Batch: 63055

Date Analyzed: 2009-08-31

Analyzed By: RR

			CCVs	CCVs	CCVs	Percent	
			True	Found	$\operatorname{Percent}$	Recovery	Date
Param	Flag	Units	Conc .	$\operatorname{Conc.}$	Recovery	Limits	${ m Analyzed}$
Total Antimony		$\mathrm{mg/L}$	1.00	1.02	102	90 - 110	2009-08-31

Standard (CCV-1)

QC Batch: 63055

Date Analyzed: 2009-08-31

Analyzed By: RR

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc .	Conc .	Recovery	Limits	${ m Analyzed}$
Total Selenium		$_{ m mg/L}$	1.00	1.02	102	90 - 110	2009-08-31

Standard (CCV-1)

QC Batch: 63055

Date Analyzed: 2009-08-31

Analyzed By: RR

Analyzed By: RR

			CCVs	CCVs	CCVs	Percent	
			True	Found	$\operatorname{Percent}$	Recovery	Date
Param	Flag	Units	$\operatorname{Conc.}$	Conc .	Recovery	Limits	Analyzed
Total Thallium		$\mathrm{mg/L}$	1.00	1.05	105	90 - 110	2009-08-31

Standard (CCV-1)

QC Batch: 63055

Date Analyzed: 2009-08-31

Work Order: 9082611

HELSTF Chromate Spill Groundwater

			CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	$rac{Date}{ ext{Analyzed}}$
Total Vanadium		$\mathrm{mg/L}$	1.00	1.04	104	90 - 110	2009-08-31

Standard (CCV-1)

QC Batch: 63055

Date Analyzed: 2009-08-31

Analyzed By: RR

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			CCVs	CCVs	CCVs	$\operatorname{Percent}$	
			True	Found	$\operatorname{Percent}$	$\operatorname{Recovery}$	Date
Param	Flag	Units	$\operatorname{Conc.}$	Conc .	Recovery	Limits	${ m Analyzed}$
Total Zinc		$\mathrm{mg/L}$	1.00	1.07	107	90 - 110	2009-08-31

Standard (ICV-1)

QC Batch: 63079

Date Analyzed: 2009-08-25

Analyzed By: JG

			CCVs	CCVs	CCVs	$\operatorname{Percent}$	
			True	Found	$\operatorname{Percent}$	Recovery	Date
Param	Flag	Units	$\operatorname{Conc.}$	Conc .	Recovery	Limits	${f Analyzed}$
pН		s.u.	7.00	7.02	100	98 - 102	2009-08-25

Standard (CCV-1)

QC Batch: 63079

Date Analyzed: 2009-08-25

Analyzed By: JG

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc .	$\operatorname{Conc.}$	Recovery	Limits	Analyzed
pН		s.u.	7.00	7.02	100	98 - 102	2009-08-25

Standard (ICV-1)

QC Batch: 63080

Date Analyzed: 2009-08-31

Analyzed By: AH

Analyzed By: AH

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc .	$\operatorname{Conc.}$	Recovery	Limits	${ m Analyzed}$
Total Cyanide		$\mathrm{mg/L}$	0.120	0.117	98	85 - 115	2009-08-31

Standard (CCV-1)

QC Batch: 63080

Date Analyzed: 2009-08-31

Work Order: 9082611

Page Number: 72 of 76 HELSTF Chromate Spill Groundwater

85 - 115

2009-08-31

			HELST	'F Chromat	e Spill Gi	roundwater		
Param	Flag	Units	CCVs True Conc	For		CCVs Percent Recovery	Percent Recovery Limits	$egin{array}{c} { m Date} \ { m Analyzed} \end{array}$
Total Cyanide	0	mg/L	0.120		.20	100	85 - 115	2009-08-31
Standard (ICV-1)								
QC Batch: 63111			Date Ar	nalyzed: 20	009-08-31		Analy	zed By: AH
Param F	lag	Units	CCVs True Conc.	CC Fou Cor	nd	CCVs Percent Recovery	Percent Recovery Limits	$egin{array}{c} { m Date} \ { m Analyzed} \end{array}$
Ammonia-N	0	mg/L	5.00	4.8		96	85 - 115	2009-08-31
Standard (CCV-1) QC Batch: 63111			Date Ar	Ų.	009-08-31		Analy	zed By: AH
Param F	lag	Units	CCVs True Conc.	CC [*] Fou Cor	nd	CCVs Percent Recovery	Percent Recovery Limits	$\begin{array}{c} {\rm Date} \\ {\rm Analyzed} \end{array}$
Ammonia-N	iag_	mg/L	5.00	4.7		96	85 - 115	2009-08-31
Standard (ICV-1) QC Batch: 63112			Date Ar	nalyzed: 20	009-08-31		Analy	zed By: AH
				$rac{ ext{CCVs}}{ ext{True}}$	CCVs Found	$\begin{array}{c} \text{CCVs} \\ \text{Percent} \end{array}$	Percent Recovery	Date
Param Total Kjeldahl Nitrog	en - N	Flag	$\frac{\rm Units}{\rm mg/L}$	Conc. 5.00	Conc. 4.93	Recovery 99	Limits 85 - 115	Analyzed 2009-08-31
Total Hjeldam Hillog	CII IV		mg/ L	0.00	1.50		00 110	2000 00 01
Standard (CCV-1)								
QC Batch: 63112			Date Ar	nalyzed: 20	009-08-31		Analy	zed By: AH
Param		Flag	${ m Units}$	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	$\begin{array}{c} {\rm Date} \\ {\rm Analyzed} \end{array}$
Total Violdala Nitra	NT		/T	r 00	F 0.4	101	OF 11F	2000 00 21

Standard (ICV-1)

Total Kjeldahl Nitrogen - N

QC Batch: 63131 Date Analyzed: 2009-09-01 Analyzed By: RR

5.00

5.04

101

mg/L

Work Order: 9082611 HELSTF Chromate Spill Groundwater

CCVs Percent	
Percent Recovery	Date
Recovery Limits	Analyzed
99 90 - 110	2009-09-01
	Percent Recovery Recovery Limits

Standard (ICV-1)

QC Batch: 63131

Date Analyzed: 2009-09-01

Analyzed By: RR

Page Number: 73 of 76

			CCVs	CCVs	CCVs	Percent	
			True	Found	$\operatorname{Percent}$	$\operatorname{Recovery}$	Date
Param	Flag	Units	Conc.	$\operatorname{Conc.}$	Recovery	Limits	${ m Analyzed}$
Total Potassium		mg/L	50.0	51.3	103	90 - 110	2009-09-01

Standard (ICV-1)

QC Batch: 63131

Date Analyzed: 2009-09-01

Analyzed By: RR

			CCVs	CCVs	CCVs	Percent	
			True	Found	$\operatorname{Percent}$	Recovery	Date
Param	Flag	Units	$\operatorname{Conc.}$	$\operatorname{Conc.}$	Recovery	Limits	Analyzed
Total Magnesium		$\mathrm{mg/L}$	50.0	48.4	97	90 - 110	2009-09-01

Standard (ICV-1)

QC Batch: 63131

Date Analyzed: 2009-09-01

Analyzed By: RR

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc .	Conc .	Recovery	Limits	${f Analyzed}$
Total Sodium		mg/L	50.0	50.2	100	90 - 110	2009-09-01

Standard (CCV-1)

QC Batch: 63131

Date Analyzed: 2009-09-01

Analyzed By: RR

Analyzed By: RR

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	$\operatorname{Conc.}$	$\operatorname{Conc.}$	Recovery	Limits	${ m Analyzed}$
Total Calcium		$\mathrm{mg/L}$	50.0	48.2	96	90 - 110	2009-09-01

Standard (CCV-1)

QC Batch: 63131

Date Analyzed: 2009-09-01

Work Order: 9082611 HELSTF Chromate Spill Groundwater

			CCVs	CCVs	CCVs	Percent	
			True	Found	$\operatorname{Percent}$	Recovery	Date
Param	Flag	Units	Conc .	Conc .	Recovery	Limits	${\bf Analyzed}$
Total Potassium		$\mathrm{mg/L}$	50.0	51.4	103	90 - 110	2009-09-01

Standard (CCV-1)

QC Batch: 63131

Date Analyzed: 2009-09-01

Analyzed By: RR

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			CCVs	CCVs	CCVs	Percent	
			True	Found	$\operatorname{Percent}$	Recovery	Date
Param	Flag	Units	$\operatorname{Conc.}$	$\operatorname{Conc.}$	Recovery	Limits	${\bf Analyzed}$
Total Magnesium		$\mathrm{mg/L}$	50.0	48.1	96	90 - 110	2009-09-01

Standard (CCV-1)

QC Batch: 63131

Date Analyzed: 2009-09-01

Analyzed By: RR

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc .	Conc .	Recovery	Limits	Analyzed
Total Sodium		m mg/L	50.0	50.2	100	90 - 110	2009-09-01

Standard (ICV-1)

QC Batch: 63168

Date Analyzed: 2009-08-28

Analyzed By: KV

			CCVs	CCVs	CCVs	Percent	
			True	Found	$\operatorname{Percent}$	Recovery	Date
Param	Flag	Units	$\operatorname{Conc.}$	Conc .	Recovery	Limits	${ m Analyzed}$
Nitrate and Nitrite as N		mg/L	0.200	0.184	92	85 - 115	2009-08-28

Standard (CCV-1)

QC Batch: 63168

Date Analyzed: 2009-08-28

Analyzed By: KV

Analyzed By: RR

			CCVs	CCVs	CCVs	$\operatorname{Percent}$	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	$\operatorname{Conc.}$	$\operatorname{Conc.}$	Recovery	Limits	Analyzed
Nitrate and Nitrite as N		mg/L	0.200	0.191	96	85 - 115	2009-08-28

Standard (ICV-1)

QC Batch: 63220

Date Analyzed: 2009-09-03

Param

Total Dissolved Solids

Flag

Units

mg/L

Conc.

1000

Conc.

997

Recovery

100

Work Order: 9082611 HELSTF Chromate Spill Groundwater Page Number: 75 of 76

Limits 90 - 110

Analyzed

2009-08-27

		HELSTF	Unromat	e Spill Gro	undwater			
Param	Flag	Tr	ue l	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	
Dissolved Chromium		mg/L 1.	00	1.04	104	90 - 110	2009-09-03	
Standard (CCV-1)								
QC Batch: 63220		Date Ana	alyzed: 20	009-09-03		Analy	zed By: RR	
		CC	${ m cVs}$	CCVs	CCVs	Percent		
				Found	Percent	Recovery	Date	
Param	Flag	Units Co	nc.	Conc.	Recovery	Limits	\mathbf{A} nalyzed	
Dissolved Chromium		mg/L 1.	00	1.01	101	90 - 110	2009-09-03	
Standard (ICV-1)								
QC Batch: 63228		Date Ana	alyzed: 20	009-09-01		Analy	zed By: JG	
			CCVs	CCVs	CCVs	Percent		
			True	Found	Percent	Recovery	Date	
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed	
Hydroxide Alkalinity		mg/L as CaCo3	0.00	<1.00		90 - 110	2009-09-01	
Carbonate Alkalinity		mg/L as CaCo3	0.00	236		90 - 110	2009-09-01	
Bicarbonate Alkalinity		mg/L as CaCo3	0.00	8.00		90 - 110	2009-09-01	
Total Alkalinity		mg/L as CaCo3	250	244	98	90 - 110	2009-09-01	
Standard (CCV-1)								
QC Batch: 63228		Date Ana	alyzed: 20	009-09-01		Analyzed By: JG		
			CCVs	CCVs	CCVs	Percent		
			True	Found		Recovery	Date	
Param	Flag	Units	Conc.	Conc.	Recovery	$\operatorname{Limits}^{\circ}$	${ m Analyzed}$	
Hydroxide Alkalinity		mg/L as CaCo3	0.00	<1.00	-	90 - 110	2009-09-01	
Carbonate Alkalinity		mg/L as CaCo3	0.00	240		90 - 110	2009-09-01	
Bicarbonate Alkalinity		mg/L as CaCo3	0.00	6.00		90 - 110	2009-09-01	
Total Alkalinity		mg/L as CaCo3	250	246	98	90 - 110	2009-09-01	
Standard (ICV-1)								
QC Batch: 63232		Date Ana	lyzed: 20	009-08-27		Analyz	zed By: MD	
		C	CVs	CCVs	CCVs	Percent		
		${ m T}$	rue	Found	Percent	Recovery	Date	
Daram	Flag		nne.	Cone	Dogovory	Limita	Anglyzod	

Report Date: September 4, 2009 Work Order: 9082611 Page Number: 76 of 76

HELSTF Chromate Spill Groundwater

Standard (CCV-1)

QC Batch: 63232 Date Analyzed: 2009-08-27 Analyzed By: MD

			CCVs	CCVs	CCVs	$\operatorname{Percent}$	
			True	Found	$\operatorname{Percent}$	Recovery	Date
Param	Flag	Units	Conc .	$\operatorname{Conc.}$	Recovery	Limits	${ m Analyzed}$
Total Dissolved Solids		mg/L	1000	977	98	90 - 110	2009-08-27

Standard (CCV-2)

QC Batch: 63285 Date Analyzed: 2009-09-04 Analyzed By: KV

			CCVs	CCVs	CCVs	Percent	
			True	Found	$\operatorname{Percent}$	Recovery	Date
Param	Flag	Units	Conc .	$\operatorname{Conc.}$	Recovery	Limits	${ m Analyzed}$
Total Organic Carbon		$_{ m mg/L}$	50.0	52.4	105	80 - 120	2009-09-04

Standard (CCV-3)

QC Batch: 63285 Date Analyzed: 2009-09-04 Analyzed By: KV

			CCVs	CCVs	CCVs	$\operatorname{Percent}$	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	$\operatorname{Conc.}$	$\operatorname{Conc.}$	Recovery	Limits	${ m Analyzed}$
Total Organic Carbon		${ m mg/L}$	50.0	51.5	103	80 - 120	2009-09-04

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PROJECT NAME

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CARRELTON VALUE - PROJECT FLAS, YELLOW - LAB: FINE - FIELD COP

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SPECIAL INSTRUCTIONS/COMMENTS.

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